T57

United States
Department of
Agriculture

LAND AND RESOURCE MANAGEMENT PLAN

NEWARK PUBLIC LIBRARY

JUN 12 1985

U. S. GOVT. PUBS.
DEPOSITORY 328

Draft Environmental Impact Statement

TOIYABE
NATIONAL FOREST

A 13.92/2:

DRAFT ENVIRONMENTAL IMPACT STATEMENT
for the
TOIYABE NATIONAL FOREST
LAND AND RESOURCE MANAGEMENT PLAN

Type of Action: Administrative

Responsible Federal Agency: Forest Service, USDA

Responsible Official:
J. S. Tixier
Regional Forester
Intermountain Region
USDA - Forest Service
324 25th Street
Ogden, UT 84401

For further information:
Robert "Jim" Nelson
Forest Supervisor
Toiyabe National Forest
1200 Franklin Way
Sparks, NV 89431
Phone: (702) 784-5331

Abstract: Nine alternatives are described and evaluated in the development of the Land and Resource Management Plan for the Toiyabe National Forest. The Toiyabe National Forest administers approximately 3,171,705 acres. These lands include 633,859 acres in California and 2,537,846 acres in Nevada. The Lake Tahoe Basin Management Unit administers approximately 24,204 acres of the Toiyabe National Forest.

Alternative P, Preferred, is the proposed action used to develop the proposed Forest Plan. The Forest Plan will guide management of the Toiyabe National Forest for the next 50 years. The Forest Plan will ordinarily be revised on a 10-year cycle or at least every 15 years. It may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered have changed significantly.

Comments must be received by ______________________________ .

Please retain a copy of this draft Environmental Impact Statement. Unless the extent of public comment or new information requires substantial revision, the final Environmental Impact Statement will respond to public comments and may consist of errata sheets correcting or adding to this draft document. Copies of the final Environmental Impact Statement will be sent only to those agencies and organizations or individuals listed in Chapter VI, to those who comment on this draft Environmental Impact Statement, and those who specifically request a copy of the final Environmental Impact Statement. For those not needing the entire document, a summary of the draft Environmental Impact Statement is also available.

SUMMARY

INTRODUCTION

This Draft Environmental Impact Statement is designed to disclose the land and resource management planning process that the Toiyabe National Forest is going through to provide for multiple use and sustained yield of goods and services from National Forest system lands in a manner that maximizes long-term net public benefits in an environmentally sound manner (36 CFR 219.1a). This Draft Environmental Impact Statement (DEIS) discloses significant environmental effects of the proposed plan and nine alternatives considered. The proposed action of the Toiyabe National Forest (Forest Plan) is described in a companion document. For purposes of National Environmental Policy Act (NEPA) disclosure, the DEIS and the Forest Plan are treated as combined documents (40 CFR 1506.4). The purpose of this DEIS is to provide a mix of management actions that allows use and protection of Forest resources, satisfies guiding legislation, and addresses local, regional, and national issues. The "planning horizon" for Forest planning is fifty years. The plan will be revised every 10 to 15 years or whenever conditions or demands have changed significantly. Provision for revision or admendment of the plan is specified in 36 CFR 219.

ISSUES, CONCERNS, AND OPPORTUNITIES

Preparation of alternatives and the draft EIS started with public involvement. The scope of the issues and concerns to be addressed in the Forest Plan and draft EIS were identified from comments solicited through public meetings, individual and group contacts, mailings, and Forest Service staff. The issues, concerns, and opportunities were analyzed and summarized into planning questions to guide the development of alternatives and the draft EIS. The planning questions are an integral part of the planning process. They are addressed differently by the proposed action and the alternatives to it. The planning questions also provide a framework for considering the environmental consequences of implementing the proposed action and the alternatives.

The first step in preparing land and resource management plans is "identification of public issues and management concerns." This public involvement process is detailed in Appendix A of this Draft Environmental Impact Statement.

As a result of this process, eleven major planning questions (issue topic) were identified for Toiyabe National Forest.

PLANNING ISSUE 1 HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ASSIGNED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATION VISITORS?

PLANNING ISSUE 2 HOW SHOULD THE FOREST RESOURCE BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

PLANNING ISSUE 3 THIS PLANNING QUESTION IS OF THREE PARTS:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

READEX FICHE best copy available

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

PLANNING ISSUE 4 HOW SHOULD RANGELANDS ON TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD HORSES, AND OTHER RESOURCE USES AND VALUES?

PLANNING ISSUE 5 HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED, AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

PLANNING ISSUE 6 THERE ARE THREE PARTS TO THIS PLANNING QUESTION:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES, AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE? ACCESS SHOULD BE PROVIDED THROUGH PRIVATE LANDS TO THE NATIONAL FOREST WHERE THERE IS A PUBLIC NEED.

PLANNING ISSUE 7 HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FOREGONE?

PLANNING ISSUE 8 SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED ROADLESS AREA STUDY. IF SO, WHICH ONE(S)?

PLANNING ISSUE 9 HOW SHOULD TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

PLANNING ISSUE 10 HOW SHOULD TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT AND GENERAL POPULATION INCREASES IN CENTRAL NEVADA?

PLANNING ISSUE 11 WHAT ADDITIONAL AREAS ON TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

National Forest land and resource management planning is designed to identify and select for implementation an alternative for managing a National Forest which most nearly maximizes NET PUBLIC BENEFITS in an environmentally sound manner. This Draft Environmental Impact Statement contains "...a broad range of reasonable alternatives to provide an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits" (36 CFR 219.12)

Net public benefits are defined as...

> "the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not...consistent with the principles of multiple use and sustained yield."

The concept of net public benefits contains both priced yields (those quantitatively determined in marketplace) and non-priced yields (those possessing values which cannot be directly measured in the marketplace). Examples of priced yields are: the stumpage value of timber, the value of forage, the value of developed recreation opportunities, the in-ground value of minerals, the creation of jobs in the local community and payments to counties in lieu of taxes. Examples of non-priced yields are: protection of threatened and endangered species, protection of cultural resources, dispersed recreation opportunities and maintenance of soil productivity.

Alternatives are designed and analyzed to achieve their goals and objectives in a manner which achieves the greatest excess in the value of priced yields in relation to their cost while meeting all specified constraints and objectives for non-priced yields. They are also designed to achieve specified non-priced yields and to meet constraints at the least cost.

There are other benefits which result from the management of the Toiyabe National Forest. These include local income and employment, lower price effects on consumers of forest products, and 25% returns to counties. These are distributive welfare effects of national forest production. Distributive effects vary with the mix and level of outputs produced on the Toiyabe National Forest. They are also influenced by policy decisions of Federal officials. These distributive effects cannot be assessed in terms of economic efficiency (PNV).

ALTERNATIVE A
(NO ACTION)

This alternative represents the current management of the Toiyabe National Forest based on existing policies, standards and guidelines as defined by 1982 program. Planning regulations (36 CFR 219) require the development of a "no action" alternative for any land management plan. The "no action" alternative within land management planning is defined as the current program of management. Alternative A by definition includes the decisions contained in the California Wilderness Bill. That is: Wilderness - 342,400 acres including the Hoover, Carson-Iceberg, and Mokelumne Addition (ie. Raymond Peak area in California),and the RARE II Wilderness Recommendations of Excelsior and Arc Dome in Nevada. Further Planning areas identified in the California Wilderness Act and the Nevada RARE II Further Planning Area (Sweetwater) are carried as further planning and protected.

The objective of this alternative is to produce the "current program" of managment of the Toiyabe National Forest. Fiscal years 1980-82 program of work and the Toiyabe Unit plans served as the model for this alternative. Management direction of objectives were only altered where new regulations or policy had rendered them obsolete.

Current management produces a moderate mixture of yields with no single resource managed intensively or emphasized to the detriment of another.

Alternative A is described in detail on pages II- 17 to II-28.

ALTERNATIVE B
(MARKET EMPHASIS)

This alternative will emphasize developed recreation, livestock grazing and a high output of sawtimber volume while increasing fire protection. The objective of this alternative is, (1) to emphasize developed recreation thru the reconstruction of current sites and the construction of new sites, (2) to emphasize minerals with increased management and administration, (3) to expand the grazing capacity by increased funding to range improvement projects, (4) increase timber management thru increased harvesting and (5) emphasize protection by implementing the most cost effective level of fire analysis and the Sierra initiative.

Alternative B is described in detail on pages II-29 to II-40.

ALTERNATIVE C
(NON-MARKET)

This alternative will emphasize suitable habitat for game and non-game species, high quality wilderness values and wild free roaming horses and burros. The objective of this alternative is (1) to emphasize wildlife thru direct habitat improvement projects, (2) increase the wilderness acreage base to include high quality areas while (3) increasing the funding for wild, free roaming horses and burros management.

Alternative C is described in detail on pages II-41 to II-52.

ALTERNATIVE D
(1980 RPA)

This was designed to maximize present net value while achieving RPA targets.

Purpose

The objective of this alternative is to meet direction in the interpretation of the "revised President's Statement of Policy" which states that " at least one Alternative in the EIS will be developed to determine how the 1980 Forest and Rangeland Resources Planning Act (RPA) program could be best implemented on the Forest." 1/ All alternatives generally meet their share of local, regional and national demands for goods and services based on the projected outputs, activities and costs assigned to the Forest from RPA. This alternative, however, is developed to closely allign those targets.

Alternative D is described in detail on pages II-53 to II-64.

ALTERNATIVE E
(25% CONSTRAINED BUDGET)

This alternative was designed to maintain the present level of protection (fire and minerals) and grazing capacity while managing the remaining resources at a reduced level. The objective of this alternative is (1) to provide fire and mineral protection consistent with the Fiscal year 82 funding level, (2) maintain range capacity thru present management practices while reducing total forest budget to 75 % of Fiscal Year 82 funding.

Alternative E is described in detail on pages II-65 to II-75.

ALTERNATIVE P
(MARKET/NONMARKET-MIX)
(PREFERRED)

This alternative is designed to emphasize developed and dispersed recreation, high quality wilderness, minerals, wildlife management and protection while maintaining livestock and wild horses at close to current levels. The objective of this alternative is (1) to emphasize developed recreation thru the reconstruction of current sites and the construction of new sites, (2) to emphasize dispersed recreation thru the construction of new trails, (3) to emphasize mineral development coordination with other resource programs thru more intensive administration, (4) to emphasize wildlife thru fisheries and elk habitat improvements and (5) to emphasize protection by implementing the most cost effective level of fire analysis and the Sierra initative.

Alternative P is described in detail on pages II-76 to II-88.

ALTERNATIVE F
(100% WILDERNESS)

This alternative was designed to emphasize primitive recreation and wilderness values. The objective of this alternative is, (1) to recommend all Roadless Areas (100%) for wilderness and (2) all other resources will be managed at an economical level.

Alternative F is described in detail on pages II-89 to II-100.

ALTERNATIVE G
(1985 HIGH PRODUCTIVITY RPA/HIGH WILDERNESS)

This alternative was designed to emphasize livestock management and produce a moderate level of sawtimber volume while increasing fire protection. The objective of this alternative is, (1) to increase the grazing capacity by improved range management practices, and (2) increase timber management thru increased harvesting.

Alternative G is described in detail on pages II-101 to II-112.

ALTERNATIVE H
(PNV ASSIGNED VALUES)

The purpose of this alternative is to maximize net public benefits consistent with resource integration and management requirements (36 CFR Part 219). The net public benefits are "the overall long-term value to the nation of all outputs and postive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not... consistent with the principles of multiple use and sustained yield."

Alternative H is described in detail on pages II-113 to II-124.

TABLE 1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity	Unit of Measure	A	B	C	D	E	P	F	G	H
RECREATION										
Developed Recreation Use 1	Thousand RVDs	560.0	1030.0	610.0	1160.0	620.0	1190.0	630.0	1230.0	630.0
Dispersed Recreation Use 1	Thousand RVDs	1949.0	2550.0	2160.0	2400.0	1740.0	2230.0	1940.0	1430.0	2530.0
Expected to meet demand		NO	YES	NO	YES	NO	YES	NO	YES	NO
Percent Full Service	Percent	70	100	54	100	60	100	53	100	70
Percent Reduce Service	Percent	30	0	46	0	40	0	47	0	30
Number of New Developed Sites	Numbers	0	17	0	14	4	12	3	13	2
Miles of New Trails	Miles	0.0	66.0	17.4	24.6	0.0	40.9	14.2	18.0	24.4
Possible ORV Travel areas open	Thousand of Acres	2863.7	3170.1	2026.0	2647.3	2866.4	2949.2	1183.5	1823.5	1672.4
Additional ORV Closed areas	Thousand of Acres	306.4	0	1144.1	522.8	303.7	220.9	1986.4	1346.6	1497.7
TIMBER										
Program Sales Offered 1	Millions CF	.92	1.86	.31	1.39	0.0	.69	0.0	1.39	0.0
	Millions BF	6.0	12.0	2.0	9.0	0.0	4.5	0.0	9.0	0.0
Artificial Regeneration 1	Acres	78.2	165.0	53.0	124.0	30.0	71.8	27.0	126.8	30.0
Natural Regeneration 1	Acres	153.4	446.6	50.6	249.2	0.0	117.8	0.0	256.8	0.0
Long Term Sustained Yield Capacity	Millions CF	1.06	2.10	1.41	1.83	0.0	1.54	0.0	1.50	0.0
Fuelwood 1	Thousand CF	561.0	641.0	417.0	575.0	540.0	587.0	357.0	510.0	474.0
	Cords	6227.0	7115.0	4629.0	6383.0	5994.0	6516.0	3963.0	5661.0	5261.0
Tentatively Suitable Forest Land	Thousand Acres	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5
Assigned to Additional Wilderness	Thousand Acres	26.0	10.1	29.7	18.4	18.4	18.4	29.7	29.7	10.3
Not Cost Efficient for Alternative	Thousand Acres	32.2	13.6	11.1	8.9	88.1	17.5	76.8	14.6	96.2
Total Suitable Forest Land	Thousand Acres	48.3	82.8	65.7	79.2	0.0	70.6	0.0	62.2	0.0
Productivity Classification	Cubic Feet/Ac./Yr.	20-49	20-49	20-49	20-49	20-49	20-49	20-49	20-49	20-49
Total Unsuitable Forest Land	Thousand Acres	1599.3	1564.8	1581.9	1568.4	1647.6	1577.0	1647.6	1585.4	1647.6
Christmas Trees 1	Thousand Trees	3.9	2.5	1.0	4.2	1.7	1.3	.5	4.5	.5
Pinyon Nuts 1	Thousand Pounds	125.0	75.8	74.7	89.5	79.5	77.8	78.8	106.9	61.5
Post & Poles 1	Thousand Post & Poles	.5	.6	.4	.5	.6	.5	.2	.5	.2
FACILITIES										
Arterial Road Construction 1	Miles	1.0	2.9	.2	2.3	0.0	.7	0.0	2.7	0.0
Arterial Road Reconstruction 1	Miles	7.3	31.1	17.7	29.8	0.0	18.7	0.0	29.5	26.5
Local Road Construction 1	Miles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Road Reconstruction 1	Miles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timber Purch. Road Construction 1	Miles	2.8	4.6	.3	3.7	0.0	.2	0.0	3.8	0.0
Timber Purch. Road Reconstr. 1	Miles	2.9	5.1	1.2	3.6	0.0	2.5	0.0	3.6	0.0
Local Road Condition		FAIR	BEST	FAIR	GOOD	POOR	GOOD	POOR	BEST	GOOD
Arterial Road Condition		FAIR	BEST	FAIR	GOOD	POOR	GOOD	POOR	BEST	GOOD
LANDS										
Land Purchase & Acquisition & Exchange 1	Acres	360.0	800.0	360.0	1200.0	260.0	700.0	600.0	600.0	800.0
High Priority Wildlife lands		NO	YES	YES	NO	NO	YES	YES	NO	NO

TABLE 1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity	Unit of Measure	A	B	C	D	E	P	F	G	H
SOIL AND WATER										
Soil and Water Improvement Acres 1	Acres	13.0	57.0	26.0	25.0	11.0	34.0	20.	11.0	29.0
Erosion over natural	Percent	5.0	23.0	3.0	13.0	0.0	5.0	0.0	12.0	0.0
Meeting Water Quality Standards 1	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0
RANGE										
Livestock (Permitted Use) 1	Thousand AUMs	98.4	99.0	92.0	98.0	95.0	99.0	92.0	102.0	92.8
Wild horses (Permitted Use) 1	Thousand AUMs	4.2	7.5	6.7	5.4	6.4	5.1	5.5	5.0	5.8
Acres in satisfactory condition	Percent by 2030	90.0	95.0	90.0	95.0	90.0	95.0	90.0	95.0	90.0
WILDERNESS										
New Wilderness acres	Thousand Acres	209.8	0	1113.6	592.7	306.1	180.5	1992.2	1345.0	1464.2
Wilderness Use 1	Thousands RVDs	442.4	100.1	1036.0	661.7	795.4	663.6	1184.9	1084.5	889.0
Development 5	Thousands of Acres	60-120	77-155	40-80	55-110	60-120	73-146	0	35-70	30-60
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres									
Primitive		147.3	135.4	147.4	87.4	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1378.1	423.1	1263.1	1078.1	1478.1	1409.1	1478.1	1288.0	1478.1
Semi-primitive moterized		1087.1	358.1	1152.1	1387.1	987.1	1056.1	987.1	947.0	987.1
Roaded Natural		536.3	2232.3	586.3	596.3	536.1	536.3	536.3	756.5	536.1
Rural		21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY OBJECTIVES	Thousand Acres									
Preservation		344.9	135.1	1248.7	727.8	441.2	346.6	2127.3	1483.1	1599.3
Retention		383.7	426.8	315.0	408.0	393.3	463.0	104.3	197.0	187.9
Partial Retention		1032.2	1203.1	629.4	926.6	968.4	1047.4	219.3	468.0	492.5
Modification		1172.4	1176.5	750.1	1016.9	1138.6	1086.4	501.8	789.0	663.0
Maximum Modification		238.5	230.4	228.5	232.4	235.2	228.0	230.4	237.6	229.0
PROTECTION										
Fuel breaks and Fuel Treatment 1	Acres	650.0	1360.0	1080.0	1090.0	780.0	1230.0	1100.0	1230.0	840.0
Prescribed burning for Range 1	Acres	480.0	560.0	400.0	440.0	360.0	480.0	400.0	560.0	560.0
Prascribed burning for Wildlife 1	Acres	1184.0	1072.0	726.0	940.0	880.0	1104.0	430.0	224.0	1026.0
Person caused fires 1	Numbers Fires	26.0	21.0	24.0	19.0	23.0	22.0	23.0	21.0	23.0
Acres burned by Wildfire 1	Thousand Acres	4.2	.5	2.3	2.3	1.5	.56	2.3	2.3	2.3
Cost plus Net Value Change 1	Millions Dollars	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

TABLE 1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity		Unit of Measure	A	B	C	D	E	P	F	G	H
WILDLIFE AND FISHERIES											
		Species numbers at the end of fifty years									
Wildlife Habitat Improvement	1	Thousand Acres	1.9	3.3	2.2	2.9	2.7	3.0	1.3	.7	3.2
Management Indicator Species											
Goshawk		Breeding Pair	60.0	56.0	70.0	57.0	59.0	66.0	80.0	72.0	80.0
Pine marten		Animals	850.0	800.0	1300.0	810.0	900.0	1000.0	1200.0	1200.0	1200.0
Paiute cutthroat trout		Fish/stream/mile	260.0	320.0	500.0	500.0	280.0	500.0	400.0	300.0	400.0
Lahontan cutthroat trout		Fish/stream/mile	250.0	300.0	475.0	370.0	250.0	500.0	360.0	280.0	360.0
Williamson's sapsucker (pairs)		Animals	3100.0	2200.0	3800.0	2700.0	3100.0	3400.0	3800.0	4000.0	3800.0
Hairy woodpecker (pairs)		Animals	4500.0	3500.0	5600.0	4100.0	4500.0	5000.0	5800.0	5700.0	5800.0
Mule deer		Animals	29.8	32.6	31.7	33.3	29.0	33.6	30.3	26.4	30.3
Sage grouse		Animals	17.3	17.3	22.0	17.4	17.3	23.0	17.3	17.3	17.3
Yellow warbler (pairs)		Animals	5500.0	4600.0	6700.0	4600.0	4800.0	5600.0	6000.0	5600.0	6000.0
Palmer's chipmunk		Animals	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0
Yellow-bellied sapsucker		Animals	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0
Macroinvertebrates		Biotic Cond. Index	70.0	50.0	100.0	51.0	55.0	75.0	90.0	70.0	90.0
Dispersed Wildlife Use											
General Forest Area	1	Thousand of WFUDs	300.0	780.0	440.0	560.0	380.0	560.0	360.0	250.0	670.0
Wilderness	1	Thousand of WFUDs	70.0	90.0	190.0	110.0	120.0	80.0	260.0	220.0	150.0
Improvement	1	Thousand of WFUDs	8.1	16.6	10.4	10.1	5.2	17.8	5.1	2.9	9.3

		Minimum Viable Population	Maximum Potential	State Agency Objective	Existing Population
Management Indicator Species					
Goshawk	Breeding Pairs	55.	132.	117.(CA/NV)	66. pairs
Pine marten	Animals	800.	3400.	NA	1000.
Paiute cutthroat trout	Fish/stream/mile	230.	460.	460.	230.
Lahontan cutthroat trout	Fish/stream/mile	200.	400.	400.	200.
Williamson's sapsucker (pairs)	Animals	2142.	10200.	NA	3400.
Hairy woodpecker (pairs)	Animals	2500.	21650.	NA	5000.
Mule deer	Animals	29000.	71000.	32400.	29000.
Sage grouse	Animals	17300.	35200.	31000.	17300.
Yellow warbler (pairs)	Animals	4020.	12000.	NA	6000.
Palmer's chipmunk	Animals	5280.	7500.	NA	6600.
Yellow-bellied sapsucker	Animals	900.	2500.	NA	1500.
Macroinvertebrates	Biotic Cond. Index	41. BCI	110. BCI	NA	75. BCI

TABLE 1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity		Unit of Measure	A	B	C	D	E	P	F	G	H
MINERALS											
Leases	1	Number of Leases	65.0	64.0	64.0	64.0	60.0	65.0	63.0	63.0	63.0
Operating Plans	1	Plans	252.0	260.0	220.0	240.0	230.0	240.0	200.0	270.0	210.0
Acres Reclaimed	1	Acres	630.0	660.0	420.0	520.0	560.0	610.0	330.0	440.0	360.0
Acres Disturbed	1	Acres	660.0	690.0	460.0	550.0	660.0	640.0	360.0	460.0	400.0
LOCATABLES	2										
High		Thousand Acres	149.0	0.0	356.3	233.3	149.0	40.4	775.6	421.5	469.6
Moderate		Thousand Acres	66.8	0.0	454.5	244.0	104.7	102.0	877.8	584.8	775.3
Low		Thousand Acres	4.3	0.0	333.3	45.5	50.0	80.5	333.3	340.3	252.8
LEASABLES	3										
Geologic Potential											
Oil/Gas											
Low		Thousand Acres	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1
Geothermal											
Low		Thousand Acres	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8
Medium		Thousand Acres	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Access Constraints	4										
Oil/Gas											
Totally Restricted		Thousand Acres	386.2	39.0	1253.1	572.5	436.4	424.9	2240.0	1572.1	1550.6
Highly Restricted		Thousand Acres	18.0	10.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Moderately Restricted		Thousand Acres	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Low Restrictions		Thousand Acres	2762.7	3117.8	1912.0	2576.4	2312.4	2724.0	908.9	1576.8	1598.2
Geothermal											
Totally Restricted		Thousand Acres	386.2	390.9	1253.1	572.5	436.4	424.9	2240.0	1572.1	1550.6
Highly Restricted		Thousand Acres	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Moderately Restricted		Thousand Acres	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Low Restrictions		Thousand Acres	2775.6	3123.7	1908.7	2589.3	2725.3	2736.9	921.8	1589.7	1611.1

1/ Yearly average for 50 years

2/ Acres of High/Moderate/Low mineral potential found on roadless acres recommended for wilderness that would be constrainted.

3/ Total Forest acres

4/ Total Forest acres

5/ These are estimated number of acres that would be developed in roadless areas there by eliminating the wilderness resource before next plan revision.

TABLE 2 SIGNIFICANT BIOLOGICAL AND PHYSICAL EFFECTS

Resource	Biological and Physical Effects
Timber	Alternatives E, F, and H would produce no regulated timber harvest. Rather, any harvest activity would be limited to salvage from insects, disease or wildfire. Table II-40 lists the acreage devoted to various timber harvesting methods and acreage in intensive vs. nonintensive management.
Wildlife	Alternatives C, E, F, and H would favor species requiring old growth habitat. Alternatives B and G would reduce the acres available for old growth on acres suitable for timber. Alternatives A and P would provide for a balance. All alternatives would maintain viable populations of native and plant species.
Threatened and Endangered Species	The nine alternatives (A, B, C, D, E, P, F, G, and H) contain standards and guidelines designed to protect all threatened, endangered and sensitive species.
Diversity	Other than the acres from which timber is harvested, diversity will be influenced by the amount of direct habitat improvement projects carried out on the forest. Within the acres being treated by various silvicultural systems, as the volume of timber being harvested increases, average age of that working group decreases. See Table IV-1 for the acres being treated by direct habitat improvement projects, the average age of the three working groups and the acres suitable for timber harvesting.
Range	All alternatives will meet minimum management requirements with regard to maintaining long term soil productivity and range condition. Alternatives B, D and P increase satisfactory range condition above the MMR requirements. Alternatives A, C, E, F, G and H will maintain soil productivity through range condition.
Soil and Water	All alternatives contain standards and guidelines to ensure that all water meets state water quality standards. The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives. All alternatives have unknown (but likely insignificant) effects on groundwater recharge, quality and instream uses (including fisheries). Some soil disturbance could occur from indiscriminate ORV use. All alternatives contain standards and guidelines which limit ORV use to areas where damage would be minimal.

TABLE 2 SIGNIFICANT BIOLOGICAL AND PHYSICAL EFFECTS

Resource	Biological and Physical Effects
Riparian Areas	All alternatives contain standards and guidelines designed to protect riparian areas.
Minerals	All alternatives contain standards and guidelines designed to manage the mineral resources.
Utility Corridors	Toiyabe National Forest presently has three principal utility corridors. Where possible, future demand for utility corridors would be limited to established rights-of-way or addressed through the Environmental Assessment process.
Air Quality	All alternatives contain prescribed burning programs which vary according to activities within the alternatives. Prescribed fires would cause some temporary air pollution (smoke) which would persist for a few hours following the burn. These impacts would be short-term and localized. A smoke management plan would be prepared with each burn to ensure compliance with state and federal clean air standards.
Land Purchase, Acquisition and Adjustment	All alternatives contain similiar land acquisition/exchange programs. Each of these alternatives contains the same exchange targets. The priority of exchange varies between these alternatives based on the goals and objectives for each alternative. A separate environmental analysis would be performed with every exchange or acquisition.
Cultural Resources	All alternatives contain standards and guidelines designed to insure protection of cultural resources by meeting the legislative requirements and by following established procedures. See Chapter IV for effects varing by alternative.
Visual Quality	The visual impact of the management practices in Alternatives B, C, P and H would be slight. The visual impacts from alternatives D, E and G could be significant, due primarily to reclamation activities associated with minerals.
Recreation Use	Alternative A would have no new developed recreation sites. Alternatives B, D, and G would have a significant impact upon dispersed recreation (primarily upon recreational opportunities among different ROS classes). Alternatives C, F, G, and H would significantly increase wilderness opportunities.
Research Natural Areas	All alternatives will maintain R.N.A. status for Mt. Jefferson, Carpenter Canyon and add the Babbitt Peak area to the system. The Sweetwater would be retained until disestablishment because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years.

ECONOMIC EFFECTS

The planning process specified in the NFMA regulations requires consideration of economic efficiency as a basic principle of planning (36 CFR 219.1(b) (13)), in the formulation of alternatives (36 CFR 219.59 (f) (1) (v)), in estimating the effects of alternatives (36 CFR 219.5 (g) (9)), and in evaluating the alternatives (36 CFR 219.5 (b)).

In addition to the NFMA requirements, the Congressionally revised Resource Planning Act Statement of Policy states that ". . . forest and rangeland in all ownerships, should be managed to maximize their net social and economic contributions to the National well being, in an environmentally sound manner. . . " Further, "The Secretary of Agriculture shall continue his efforts to evaluate the cost-effectiveness of the renewable resource program."

The main criterion used in the economic efficiency analysis is present net value. It is defined as discounted benefits less discounted costs, including only those outputs that can be assigned monetary values. In the linear programming model, FORPLAN, each alternative was originally run to maximize present net value over five decades. This ensured that the original tentative management prescriptions for each alternative were cost-efficient. Prescriptions are composed of a cost-efficient set of practices needed to achieve the desired ends. The optimum alternative is the one that maximizes net public benefits (NPB), defined as the overall value to the nation of all benefits less all associated inputs and costs, regardless of whether or not they can be assigned monetary values.

Examples of such benefits include public safety, visual quality, concern for future generations, and diversity of resources. Much of the difference in PNV of the various alternatives is an indication of how a particular alternative provides qualitative and nonquantifiable benefits.

The economic parameters shown in the tables in this section reflect only the monetary portion of the analysis used to evaluate alternatives. Decisionmakers consider public benefits in addition to economic efficiency in the final analysis.

Table 3 --Discounted benefits and costs, 4% discount rate, MMS, 50 year period (1982 Dollars)

	Benchmarks Max PNV	Alternatives								
	All	A	B	C	D	E	F	E	G	H
Present Net Value, PNV	990.0	508.2	810.8	831.0	869.6	661.4	840.8	865.8	697.3	990.0
Present Value of Benefits, PVB	1142.1	638.0	1015.1	977.8	1052.8	760.4	1005.7	975.7	878.5	1142.1
Present Value of Costs, PVC	152.0	129.8	204.2	146.7	183.1	98.4	164.8	104.5	176.3	152.0
PVB, by Output:										
Timber	0	9.9	18.4	3.4	14.4	0	7.4	0	14.6	0
Other Timber 1/	2.0	3.0	2.8	2.0	2.7	2.5	2.6	1.8	2.7	2.0
Recreation	269.2	216.6	313.8	240.7	299.1	205.2	287.9	218.0	220.8	269.2
Wildlife	402.2	202.6	320.8	359.3	355.0	283.6	346.9	346.2	267.5	402.2
Range	35.5	37.4	37.7	35.3	37.4	37.7	36.7	35.5	38.5	35.5
Wilderness	199.5	102.5	23.3	234.0	148.8	205.1	149.9	218.0	245.1	199.5
PVC, by Output:										
Total Budget	152.0	129.8	204.2	146.7	183.1	98.9	164.8	104.5	176.3	152.0
Protection-cost	19.0	17.4	28.6	20.9	19.6	21.4	28.6	20.2	20.2	19.0
General-Administration	19.8	19.2	19.8	22.6	19.8	13.3	22.6	13.3	19.8	19.8
Total Road Construction	26.6	12.1	32.9	13.0	28.6	2.0	16.3	2.0	29.6	16.7
Appropriated Funds Road	26.0	9.4	27.5	12.1	24.6	2.0	14.4	2.0	25.6	16.7
Purchaser Road	0	2.7	5.4	.9	4.0	0	1.9	0	4.0	0
Recreation Construction	.36	0	7.6	.27	5.3	.17	6.5	.36	7.2	.36
Other-Investment	1.1	1.7	7.3	4.3	7.3	1.1	4.3	1.1	7.3	1.1
Operation & Maintenance	107.6	74.2	97.2	78.4	101.5	58.6	86.4	65.4	93.4	107.6

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood.

SHORT TERM USES OF MAN'S ENVIRONMENT & THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

The relation between short-term uses of man's environment and the maintenance and enhancement of long-term productivity is complex. Short-term uses such as livestock grazing, timber harvesting, and recreation are ongoing.

Forest management is both a short-term and a long-term venture. Managers of National Forests think in terms of what many persons view as the distant future. Rotations on this Forest for producing timber and the associated outputs of water, wildlife, and scenic quality, range from 120 to 300 years for the various working groups.

The planning period for plans developed under NFMA is 50 years. The Multiple Use-Sustained Yield Act of 1960 defined sustained yield as the "achievement and maintenance in perpetuity of a high level annual or periodic output of the various renewable resources of the National Forests without impairment of the productivity of the land." "Long-term" refers here to longer than the 50-year period represented by the Forest Plan. "Productivity" refers to the capability of the land to provide outputs of resources. Soil and water are the primary factors of productivity.

TABLE 4 EFFECT OF SHORT-TERM USE ON LONG-TERM PRODUCTIVITY

Resource	**Effect of Short-term use on Long-term Productivity**
Timber	Alternative E, F, and H essentially have no long term sustained yield of timber. Under these alternatives, the timber resource would be essentially unutilized. The long term sustained yield for the nine alternatives would be: Alternative A 1.06 million cubic feet per year Alternative B 2.10 million cubic feet per year Alternative C 1.41 million cubic feet per year Alternative D 1.83 million cubic feet per year Alternative E 0.00 million cubic feet per year Alternative P 1.54 million cubic feet per year Alternative F 0.00 million cubic feet per year Alternative G 1.50 million cubic feet per year Alternative H 0.00 million cubic feet per year
Wildlife	All alternatives contain standards and guidelines (including the minimum management requirements) to maintain viable populations of all native vertebrate and plant species.
Threatened and Endangered Species	All alternatives contain standards and guidelines to protect threatened, endangered and sensitive species.

Resource	Effect of Short-term use on Long-term Productivity
Soil and water	All the alternatives produce a level of water deemed necessary to meet all anticipated short-term needs. Short term use of surface and groundwater would not affect long-term yields.
	All alternatives contain standards and guidelines (including the minimum management requirements) to maintain soil productivity and water quality. Soil loss will increase temporarily due to soil disturbing management (timber harvesting, mineral extraction, recreation construction projects, etc.), however this loss is within limits necessary to maintain site productivity.
Recreation	All alternatives would supply sufficient dispersed recreation opportunties to meet long-term demands. Alternative B, D, P, and G has been designed to meet the long-term demands for developed recreation use.
	Developed recreation sites are long-term commitments. Maintenance work is short-term, is repeated periodically, and increases the long-term productivity of a site.
	Any new construction or reconstruction will add to the long-term effect. Adverse effects of developed recreation are expected to be long-term.
	Recreation use of dispersed areas may cause long term loss of soil and vegetation. However, construction of facilities can mitigate unacceptable impacts resulting from dispersed recreational use on undeveloped sites.
	Construction for dispersed recreation is a long-term commitment for the occupied area. Adverse effects of these facilities will continue as long as human use continues. Human visits themselves are short-term, but cumulative effects on areas that receive concentrated use and on access routes may remain for the long term.
	Most recreation special uses are long-term commitments of land for a specified use. The adverse effects continue as long as the special use remains. The major adverse effects of construction are short-term and can be mitigated or prevented.
	Off road vehicle travel is a short-term use. However, its cumulative effects may remain for many years. Proper management of ORV use can eliminate all but minor adverse effects on long-term productivity. Alternatives such as the Current Program and Constrained Budget do not provide a strong management program and are most likely to allow long-term adverse effects on the land.

Resource	Effect of Short-term use on Long-term Productivity
	The Market/Nonmarket Mix, and Preservation and 100% wilderness alternatives call for stronger management programs to protect the land.
	Changes in visual quality caused by resource management activities are usually long-term effects if they include permanent structures, roads, major soil movement, or major changes in vegetation. Temporary installations or minor activities cause only short-term changes in visual quality.
	Dedication of a site to cultural resource purposes is a long-term commitment. Destruction of a cultural resource without prior investigation permanently destroys its historical value.
	Designation of Research Natural Areas is a long-term commitment, but does not reduce productivity of the land.
Riparian Areas	All of the alternatives except A contain standards and guidelines which mitigate management practices in riparian areas. The long-term productivity of these areas should not be affected by any alternative.
Range	All alternatives contain standards and guidelines that mitigate resource conflicts with range management practices. In alternatives A, C, E, F, and H productivity could be reduced on some heavily used sites. All existing and future range improvement projects will increase short term production and help insure long-term productivity of the range.
Fuel Management	Forest and range fires are short-term events. In the natural environment, they occur on a cyclic basis and do not affect long-term productivity of the land. Both fire and the control of fire, can affect short-term productivity by altering plant succession, fuel accumulations, nutrient cycles and energy flow, and productivity, diversity and stability of ecosystems.
Minerals and Mineral Leasing	Impacts of mineral and energy development are usually short-term because adequate technology exists to return disturbed sites to their former productivity. Mineral extraction is a short-term activity. Once removed, however, the minerals can not be replaced.
	Land ownership and leasing: Leases are issued for 10 years or a short-term, but mineral claims are long-term commitments and can result in a land patent and transfer of land to private ownership.

Resource	Effect of Short-term use on Long-term Productivity
	Vegetation resource: Most vegetational cover can be rehabilitated in a short time, but sensitive species with small localized populations may be lost permanently. Removal of sensitive types of vegetation will have a long-term adverse effect, especially in high alpine zones.
	Soil resource: If vegetation is removed from a high precipitation area, serious soil erosion may result. Exposure of highly sensitive soils can result in erosion or mass soil movement. This would be a long-term effect because it would take many years to replace the soil.
	Hydrology and water quality: A minor increase in runoff is expected under any alternative. This runoff may add sediment to the streams, a short-term effect. There is a slight chance of an oil or chemical spill, which could have a long term effect. Both effects can be held to a minimum if proper procedures are followed.
	Cultural-archaeological and historical resources: These resources are not expected to be affected unless an unintentional disturbance occurs. If unintentionally disturbed, damage would be a long-term effect. Alternatives B, E, and P would have the least effect because of increased mineral management.
	Wilderness impacts: Where development is allowed, wilderness values will be lost until such time as natural conditions could be restored. This will be a long-term or permanent effect.
	Wildlife and fish habitat: Most impacts on wildlife and fish are short-term. Site rehabilitation can usually restore the long-term productivity of these habitats. If cumulative impacts, however, create loss of wildlife or fish populations, the impact will be long-term.
	Recreation: Noise, air pollution, and visual intrusion are short-term impacts that return to normal following termination of the activity. Impacts on recreation opportunities are generally short-term unless roads remain open, which changes the type of recreation opportunities available over the long-term.
Wilderness	Wilderness designation is a long-term commitment. Proper management will maintain the wilderness resource. Not designating an area as wilderness may be a long or short short commitment, depending on future management. Once significant site-disturbing activities take place, the possibility of designating that area as wilderness is greatly diminished.

SUMMARY OF PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

National Forest land and resource management planning is designed to provide resources, goods and services within the constraint of maintaining the sustained yield of recreation, water, timber and wildlife without impairing the long-term productivity of the land.

The alternative formulation process considered a wide range of alternatives. A few of these alternatives contain significant adverse effects upon the physical, biological, social and economic portions of the human environment. Many of these effects are a consequence of the management practices, yields, standards and guidelines and policies associated with those alternatives. One purpose of selecting the perferred alternative is that it minimized adverse effects. The following table lists the unavoidable adverse impacts for each alternative.

The table on the following page lists the long-term effects by resource for each of the alternatives:

TABLE 5 UNAVOIDABLE ADVERSE EFFECTS

Alternatives		**Unavoidable Adverse Effects**
A,C,D,E,P,F,G,H	(1)	The Forest Service recommends wilderness, but Congress designates wilderness, and only Congress can reverse the designation. Wilderness designation is considered a permanent commitment. Extensive site-disturbing activities on lands not recommended or designated as wilderness effectively remove those lands from future consideration as wilderness.
A,B,C,D,P,G	(2)	Short-term adverse effects on visual quality from timber harvesting, reforestation, local road construction/reconstruction and mineral extraction.
	(3)	Localized lowering of site productivity (soil compaction and displacement) on skid trails, temporary roads and new system roads.
	(4)	Short-term adverse effects on riparian areas from timber harvesting and other management practices involving the use of mechanized equipment.
All Alternatives	(5)	Localized adverse effects from the use of pesticides to control bark beetles and other insect or disease problems in high value areas (such as administrative sites or developed recreation areas).
	(6)	Short-term adverse effects on soil and water quality from localized soil movement during road construction/reconstruction and mineral extraction until exposed soil was stablized with vegetative

Alternatives	Unavoidable Adverse Effects
	cover. Grazing and trampling along trails used to access summer ranges will occur. There would be the loss of some vegetation because of grazing pressures on bedding and salting grounds.
	(7) Short-term adverse effects on air and visual quality from prescribed burning
	(8) Major mineral activity in wilderness could cause the irreversible loss of the wilderness resource. Mineral activity in undesignated roadless areas outside wilderness could destroy the wilderness character of such areas and preclude them from being considered for wilderness in the future.
A	(9) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 56,329 acres 1/ removed from the timber base for wilderness recommendation and potential loss of mineral production on 209.8 M acres recommend for wilderness. Loss of 60 to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development. This alternative will not meet MMR in range with relationship to soil productivity.
B	(10) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses. Loss of 60 M to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development
C	(11) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 60,080 acres 1/ removed from the timber base for wilderness recommendation and potential loss of mineral production on 1,113.6 M acres recommended for wilderness. Loss of 40 M to 80 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
D	(12) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 48,710 acres 1/ removed from the timber base for wilderness recommendation and potential loss of mineral production on 592.7 M acres recommended for wilderness. Loss of 55 M to 110 M roadless area acres not recommended as wilderness designation for further

Alternatives	Unavoidable Adverse Effects
	consideration as wilderness due to mining development.
E	(13) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 306.1 M acres recommended for wilderness. Loss of 50 M to 100 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
P	(14) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 48,710 acres 1/ removed from the timber base for wilderness recommendation and potential loss of mineral production on 211.5 M acres recommended for wilderness. Loss of 60 M to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
F	(15) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 1,992.2 M acres recommended for wilderness. Loss of 75 M to 150 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
G	(16) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 60,080 acres 1/ removed from the timber base for wilderness recommendation and potential loss of mineral production on 1348.0 M acres recommended for wilderness.
H	(17) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 1,464.2 M acres recommended for wilderness. Loss of 50 M to 90 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.

1/ Acres that are within the total recommended wilderness suitable for timber.

Table of Contents

Page

Chapter I - Purpose and Need for Action

Introduction I-1
Legislative Framework I-1
Planning process and linkages I-1
Forest planning and process I-4
Location I-5
Issue, concerns and opportunities I-7

Chapter II - Alternatives, including the Proposed Action

Introduction II-1
Alternative Development II-2

Benchmarks Level Description

Minimum Level Benchmark II-4
Current Management Benchmark II-4
Maximum Timber Benchmark II-5
Maximum Dispersed Recreation II-5
Maximum Developed Recreation Benchmark II-5
Maximum Wilderness Benchmark II-5
Maximum Present Net Value - (Market) - Benchmark II-6
Maximum Present Net Value - Assigned Values - Benchmark . . II-6
Maximum Grazing Resources Benchmark II-7
Minimum Wilderness Benchmark II-7
Economic Analysis of Benchmarks II-7
Benchmark Analysis by Primary Resource Element II-12
Alternative Considered but not in Detail II-15

Alternative Considered in Detail

Alternative A - No Action - Current Budget II-17
Alternative B - Market Opportunities II-29
Alternative C - Non-Market Opportunities II-41
Alternative D - 1980 RPA Program II-53
Alternative E - Constrained Budget II-65
Alternative P - Market/Non Market Mix II-76
Alternative F - Primitive Recreation and Wilderness II-89
Alternative G - 1985 High Productivity and High Wilderness. II-101
Alternative H - Assigned Value - PNV II-113
Comparison of Alternatives II-125
Economic Efficiency Analysis II-173
Environmental Effects II-179

Chapter III Affected Environment

Physical and Biological setting III-1
Economic and Social Setting III-48

Chapter IV - Environmental Consequenses

Introduction IV-1
Effects on Resources IV-2

Management Activities that do not vary by Alternative

Direct Effects IV-6
Indirect Effects IV-11
Biological and Physical Direct and Indirect Effects IV-13
Economic Effects IV-90

Short Term uses on Long Term Productivity IV-94
Energy Requirements IV-98
Irreversible and Irretrievable IV-99
Summary of Probable Adverse Environmental Effects IV-100
Natural or Depletable Resource Requirements IV-104
Urban Quality, Historic, and Cultural Reources IV-104
Mitigating Measures IV-105

Chapter V List of Preparers

Management Team V-1
Interdisciplinary Team V-1
Support Group V-4

Chapter VI Lists of Agencies, etc.

Chapter VII Glossary

Glossary VII-1

Chapter VIII Index

Chapter IX References

References IX-1

Chapter X Appendices

A.

Sources A-1
Public Involvement A-1
Evaluation Process A-1
Alternative Formulation A-2
Consultation Process A-2
Selected Issues, Concerns, Opportunities A-3

B.

Introduction B-1
Inventory Data for Information Collection B-5
The Forest Planning Model B-17
Economic Efficiency B-63
Social and Economic Report Analysis B-79
Analysis Prior to the Development of Alternatives B-85
Formulation of Alternatives B-104
Estimating Effects of Benchmarks, Discretionary Constraints, and Alternatives B-129

C. Roadless Area Evaluation C-1

D. Management Areas on Toiyabe National Forest D-1

E. Departure Analysis E-1

F. Relationship of Mineral/Wilderness Issues F-1

G. Developed Recreation Sensitivity Analysis G-1

LISTS OF TABLES

Table Page

1 Effects of resources by alternatives vi
2 Significant biological and physical effects x
3 Increasing present value cost and non-priced outputs . . xiii
4 Effect of short-term use and long-term productivity . . xiv
5 Unavoidable adverse effects xviii

II-1 Present Net Value and priced outputs for benchmark . . . II-8
II-2 Present Net Value and non priced outputs II-9
II-3 Present Net Value and qualitative efforts II-11
II-4 Selected average outputs for the existing situation . . II-12
II-5 Timber management outputs of benchmark levels II-12
II-6 Recreation use projections of benchmark levels II-13
II-7 Wilderness outputs by benchmark levels II-13
II-8 Average annual outputs of wildlife by benchmark levels . II-14
II-9 Average annyal grazing outputs by benchmark levels . . . II-14
II-10 Resource yield with associated values for alternative A II-18
II-11 Annual yields, activities and costs for alternative A II-19
II-12 Resource yield with associated values for alternative B II-30
II-13 Annual yields, activities and costs for alternative B II-31
II-14 Resource yield with associated values for alternative C II-42
II-15 Annual yields, activities and costs for alternative C II-43
II-16 Resource yield with associated values for alternative D II-54
II-17 Annual yields, activities and costs for alternative D II-55
II-18 Resource yield with associated values for alternative E II-66
II-19 Annual yields, activities and costs for alternative E II-67
II-20 Resource yield with associated values for alternative P II-78
II-21 Annual yields, activities and costs for alternative P II-79
II-22 Resource yield with associated values for alternative F II-90
II-23 Annual yields, activities and costs for alternative F II-91
II-24 Resource yield with associated values for alternative G II-102
II-25 Annual yields, activities and costs for alternative G II-103
II-26 Resource yield with associated values for alternative H II-114
II-27 Annual yields, activities and costs for alternative H II-115
II-28 Comparison of acres selected for timber production . . . II-126
II-29 Acres by management area prescription II-127
II-30 Resources, yields and activities with significant differences between alternatives II-129
II-31 Recreation construction/reconstruction projects II-134
II-32 Dispersed recreation opportunities between alternatives II-137
II-33 Dispersed recreation visual quality objectives between alternatives II-138
II-34 Wilderness proposals II-160
II-35 Present Net Value and Priced Outputs for alternatives . II-174
II-36 Present Net Value and Non priced outputs II-175
II-37 Present Net Value and Qualitative effects II-177
II-38 Significant biological and physical effects II-179
II-39 Significant social and economic effects II-181
II-40 Timber harvest methods and intensity total by alternatives II-189
II-41 Price of outputs used in PNV caluation II-190

III-1 Toiyabe National Forest Acreage III-3
III-2 Developed and Dispersed ROS Class Acreage III-7
III-3 Land Classification III-13
III-4 Suitable and Available Timber by Species Strata III-14
III-5 Estimated Annual Water Yield III-18
III-6 Wild Horse and Burros Population and Trend III-20
III-7 Lands Capable, Available, and Suitable for Livestock Range Production III-22
III-8 MIS capability III-26
III-9 MIS Habitat Type III-27
III-10 MIS Habitat Capability III-28
III-11 Lands Open and withdrawn to Mineral Energy Activities . III-33
III-12 Forest Highways III-40
III-13 Primary and Extended (Secondary) Zones III-48
III-14 Economic Indicators - Past Trends III-56
III-15 Economic Indicators - Baseline Projections III-59

IV-1 Effects on Resources by Alternatives IV-2
IV-2 Management activities which do not vary significantly between alternatives IV-6
IV-3 Disconted benefit and costs IV-91
IV-4 Effects of short-term use on long-term productivity . . IV-95
IV-5 Unavoidable adverse effects IV-100

B-1 Actvities and Outputs used in FORPLAN B-9
B-2 Coordinated Allocation Zones and Analysis Areas used in the Toiyabe FORLAN Model B-22
B-3 Acres by Management Area Prescription B-58
B-4 Timber Values in De-FORPLAN B-68
B-5 Summary of Timber Value Results B-71
B-6 Price of Outputs for PNV Calculation B-77
B-7 Final Demand Expenditures by Sector B-82
B-8 Final Demand Expenditures by Sector B-82
B-9 Final Demand Expenditures by Sector B-82
B-10 Percentages used to Determine Weighted Ave. Final Demand Expenditures for Outputs B-83
B-11 Determination of Forest Outputs by Model Area B-84
B-12 The Percentages of Outputs from FORPLAN used in IMPLAN B-84
B-13 Yields, Activities, Costs and Benefits by Benchmarks B-96
B-14 Comparison of Alternative A to Maximum Present Net Value (Assigned Values) Benchmark B-109
B-15 Comparison of Alternative B to Maximum Present Net Value (Assigned Values) Benchmark B-111
B-16 Comparison of Alternative C to Maximum Present Net Value (Assigned Values) Benchmark B-113
B-17 Comparison of Alternative D to Maximum Present Net Value (Assigned Values) Benchmark B-115
B-18 Comparison of Alternative E to Maximum Present Net Value (Assigned Values) Benchmark B-117
B-19 Comparison of Alternative P to Maximum Present Net Value (Assigned Values) Benchmark B-120
B-20 Comparison of Alternative F to Maximum Present Net Value (Assigned Values) Benchmark B-122

B-21 Comparison of Alternative G to Maximum Present Net Value (Assigned Values) Benchmark B-124
B-22 Comparison of Alternative H to Maximum Present Net Value (Assigned Values) Benchmark B-126
B-23 Resource Yield, Activities, Costs and Benefits by Alternative B-131
B-24 Increasing Present Value Cost and Non-Priced Outputs B-139
B-25 Decreasing Present Net Value and Priced Outputs by Alternative B-141

C-I Management Prescriptions assigned to Roadless Areas, by Alternative, by Acres . . . . C-8 through C-336
C-II Environmental Consequences of Wilderness/Nonwilderness Designation on the Environment for the First Planning Period . . . . C-8 through C-336
C-III Estimated Impacts on Wilderness Character by Alterative for the First Planning Period . . . . C-9 through C-337

E-1 Age Class Distribution E-2
E-2 Resource Outputs for Alternative P (Non departure) . . . E-4
E-3 Resource Outputs for Alternative P (Departure) E-5

F-1 Summary Description of Areas Considered by Interest Groups within Nevada F-4
F-2 Summary of Wilderness Resource Values F-6
F-3 Wilderness Proposal - M acres F-11
F-4 Present Net Values and Priced Outputs of Alternatives . . F-16

G-1 $ 3.00 vs. $ 8.13 Developed Recreation Outputs G-1
G-2 Developed Recreation Construction/Reconstruction Projects G-2

FIGURES

Figure Page

II- 1 Developed Recreation Opportunities between Alternatives . . . II-132
II- 2 Dispersed Recreation Opportunities between Alternatives . . . II-133
II- 3 Wilderness Recreation Opportunities between Alternatives . . II-133
II- 4 Comparison of Timber Volume between Alternatives II-142
II- 5 Comparison of Reforestation Acreage between Alternatives . . II-142
II- 6 Comparison of Fuelwood Volume between Alternatives II-143
II- 7 Comparison of Soil and Water Improvement Acres between Alternatives II-146
II- 8 Comparison of Domestic Livestock Use between Alternatives . . II-149
II-19 Comparison of Wild Free-roaming Horses and Burros between . . II-149 Alternatives
II-10 Total Arterial and Collection Road Miles between Alternatives II-152
II-11 Total Local Road Miles between Alternatives II-153
II-12 Operating Plans between Alternatives II-155
II-13 Acres distributed between Alternatives II-155
II-14 Acres reclaimed between Alternatives II-156
II-15 Wilderness Acreage Percentage by Alternative II-159
II-16 Total Wildlife and Aquatic User days between Alternatives . . II-165
II-17 Total Wildlife User days between Alternatives II-166

II-18 Total Aquatic User days between Alternatives II-166
II-19 Total Wildlife Improvement Acres between Alternatives II-167
II-20 Benchmark/Alternative Output Levels II-191

IV- 1 Comparison of Present Net value by Alternative IV-92
IV- 2 Comparison of Present benefits by Alternatives IV-92
IV- 3 Comparison of Present Net costs by Alternatives IV-93

E-1 Departure Graph E-6

I. PURPOSE AND NEED

INTRODUCTION

This Draft Environmental Impact Statement is designed to disclose the land and resource management planning process that the Toiyabe National Forest is going through to provide for multiple use and sustained yield of goods and services from National Forest system lands in a manner that maximizes long-term net public benefits in an environmentally sound manner (36 CFR 219.1a). This Draft Environmental Impact Statement (DEIS) discloses significant environmental effects of the proposed plan and nine alternatives considered. Addressing public issues, management concerns, resource use and development opportunities are keys to accomplishing this purpose. The proposed action of the Toiyabe National Forest (Forest Plan) is described in a companion document. For purposes of National Environmental Policy Act (NEPA) disclosure, the DEIS and the Forest Plan are treated as combined documents (40 CFR 1506.4). The purpose of this DEIS is to provide a mix of management actions that allows use and protection of Forest resources, satisfies guiding legislation, and addresses local, regional, and national issues. The "planning horizon" for Forest planning is fifty years. The plan will be revised every 10 to 15 years or whenever conditions or demands have changed significantly. Provision for revision or admendment of the plan is specified in 36 CFR 219.

LEGISLATIVE FRAMEWORK

National Forest land and resource management planning is required by the Forest and Rangeland Resources Planning Act of 1974 (RPA) as amended by the National Forest Management Act of 1976 (NFMA). This Draft Environmental Impact Statement (DEIS) meets the requirements of the National Environmental Policy Act of 1969 (NEPA), Council of Environmental Quality (CEQ) NEPA requlations, and NFMA implementing regulations (36 CFR 219). For purposes of NEPA disclosure, the DEIS and Forest Plan are treated as combined documents (40 CFR 1506.4) to reduce duplication and paperwork.

PLANNING PROCESS & LINKAGES

The planning process is based on the 14 planning principles stated in the NFMA regulations (36 CFR 219.1). These are:

1. Establishment of goals and objectives for multiple-use and sustained yield management of renewable resources without impairment of land productivity.

2. Consideration of the relative values of all renewable resources, including the relationship of nonrenewable resources such as minerals to renewable resources.

3. Recognition that the National Forests are ecosystems and that their management for goods and services requires an awareness and consideration of the interrelationships among plants, animals, soil, water, air, and other environmental factors within such ecosystems.

4. Protection and - where appropriate - improvement of the quality of renewable resources.

5. Preservation of important historic, cultural, and natural aspects of our National heritage.

6. Protection and preservation of the inherent right of freedom of American Indians to believe, express, and exercise their traditional religions.

7. Provisions for the safe use and enjoyment of Forest resources by the public.

8. Protection through ecologically compatible means of all Forest and rangeland resources from depredations by Forest and rangeland pests.

9. Coordination with the land and resource planning efforts of other Federal agencies, State and local governments, and Indian tribes.

10. Use of a systematic, interdisciplinary approach to ensure coordination and integration of planning activities for multiple-use management.

11. Early and frequent public participation.

12. Establishment of quantitative and qualitative standards and guidelines for land and resource planning and management.

13. Management of National Forest System lands in a way that is sensitive to economic efficiency.

14. Responsive to changing conditions of land and other resources and to changing social and economic demands of the American people.

Forest Service planning is a continuous, iterative process carried out on three levels:

1. National -- RPA Assessment and program.

2. Regional -- Regional Guide.

3. Local -- Forest Land and Resource Management Plans for National Forest System lands; Statewide comprehensive plans for fish and wildlife management and outdoor recreation; and State Forest resource plans that are developed by the States with Forest Service assistance for State and private lands and that provide information that is used at the Regional and National levels.

Management direction becomes increasingly specific as planning progresses from the National to the local level.

NATIONAL RPA ASSESSMENT AND PROGRAM

Every 10 years, a comprehensive, nationwide assessment is made of the Forest and rangeland renewable resources in the United States. Using information generated at the local and Regional levels, this RPA Assessment covers timber, range, minerals, water, wildlife and fish, outdoor recreation, and wilderness. Long-range projections are made of future supply and demand for each of these resources. The findings are then used to help determine the desired level of future Forest Service programs. Alternative levels of outputs and associated costs are examined in the RPA program, which is prepared every 5 years. Based on an analysis of these alternatives and consideration of public views, the Secretary of Agriculture selects a National RPA recommended program for the Forest Service. Based on the program, the nationwide resource objectives are distributed among the nine Regions of the National Forest System. The recommended program and a presidential statement of policy are transmitted to Congress, which may accept, reject, or revise the statement of policy. The final Statement of Policy and program together guide the framing of future Forest Service budget proposals. Actual program implementation is directed by annual appropriations.

REGIONAL GUIDES

Regional planning links the RPA assessment and program with the local Forest and State planning. It plays a dual role by channeling management direction from the National to the local level and information from the local to the National level. The Regional Guides are tiered to National direction.

The Regional Guide communicates National and Regional direction for National Forest planning, as well as information pertinent to the development of State Forest Resource Plans and research activities. Specifically, the Regional Guide serves the following purposes:

1. It provides standards and guidelines for various management activities that may be carried out on the National Forests. These standards and guidelines specify the actual criteria to be applied to management activities.

2. It provides planning direction for developing individual Forest Plans, including those issues or concerns raised at the national or Regional level that can only be assessed or resolved by the Forests. Planning direction essentially defers the final decision on an issue to the individual Forest, within limits established by the Region.

3. It displays the Regional RPA program and distributes tentative resource targets among the individual National Forests. RPA-assigned objectives are used as the basis for one of the alternatives examined in the Forest planning process.

4. It reflects the general coordination of National Forest System programs, State and Private Forestry programs, and research programs.

FOREST PLANNING

National Forest land and resource management planning considers a broad range of reasonable management alternatives. To the extent practicable, Forest plan alternatives reflect the full range of major commodity and environmental resource uses and values that could be produced from the Forest. All alternatives are formulated to provide different ways of addressing the major public issues, management concerns, and resource opportunities identified during the planning process. One alternative is designed to meet the Forest's tentatively assigned share of the 1980 RPA program; others have resource outputs that are above or below the RPA program levels. The emphasis in both the RPA program and National Forest Plan is on the future and how the Forest can best be used and managed to meet peoples' needs. The Forest's Draft Environmental Impact Statement (DEIS) is tiered to the Region Four Regional Guide (EIS).

FOREST PLANNING PROCESS

Regulations to implement the requirements of the National Forest Management Act were promulgated on September 30, 1982, by 47 FR 43037, 36 CFR 219. Those regulations outline in detail how the proposed Forest Plan is to be prepared. The actions required by the National Forest planning regulations set forth in 36 CFR 219.12 and used in the planning process are as follows:

1. Identification of purpose and need.
2. Development of planning criteria.
3. Collection of inventory data and information.
4. Analysis of the management situation.
5. Formulation of alternatives.
6. Estimated effects of alternatives.
7. Evaluation of alternatives.
8. Recommendation of preferred alternative.
9. Approval of Plan.
10. Monitoring and evaluation of Plan.

Forest planning is coordinated within and tiered to National and Regional planning as required by the laws cited above and the regulations for implementing them. The Regional Guide establishes management standards and guidelines, provides planning guidance for regionally significant issues and concerns, distributes National goals and targets from the 1980 RPA to goals, and addresses local issues and concerns. To meet the requirements of NEPA including full disclosure, the DEIS and Proposed Forest Plan are distributed toghether as a combined document as per 40 CFR 15006.4.

The Draft EIS was prepared and is being circulated for comment upon completion of planning actions 1 through 7. The title page of this document states the time allowed for public comment. Part of Step 7 was developed from a preferred alternative. The Preferred Alternative (proposed action) is the basis for the proposed Toiyabe National Forest Land and Resource Management Plan detailed in the accompanying document. After the close of the comment period, the Forest will repeat planning actions 1 through 7 as necessary. A Final Environmental Impact Statement (FEIS) will then be prepared, filed with the Environmental Protection Agency, and made available to the public. The Regional Forester will use the FEIS to make a decision under NFMA for approval of the Forest Plan [36 CFR 219.10(c)] documented in the Record of Decision.

The Forest Plan may be revised as needed on a 10-year cycle. It must be revised at least every 15 years. The Plan may also be revised whenever the Forest Supervisor determines that conditions or demands covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on Forest level programs. The Forest Supervisor will review the conditions that might require revision of the Forest Plan at least every 5 years.

The 1984 California Wilderness Act was passed and signed by the President on September 28, 1984. This Act added two additional wilderness, the Carson-Iceberg (Toiyabe and Stanislas National Forests) and an addition to the existing Mokelumme Wilderness (Toiyabe, Eldorado, and Stanislas National Forests). The Act also carried four planning areas (Carson-Iceberg - Area around Noble Canyon, Hoover West, Hoover East, and Sweetwater). The remaining roadless areas in California were released from further wilderness evaluation until the next planning period.

There are two contiguous roadless areas shared with adjoining Forests:

1. Carson Iceberg Planning Area - The evaluation of wilderness for the entire roadless area is contained in the Stanislaus National Forest EIS.

2. Excelsior - A portion of the Excelsior roadless area is on the Inyo National Forest. The Toiyabe National Forest EIS will cover the entire area for wilderness evaluation.

TIERING

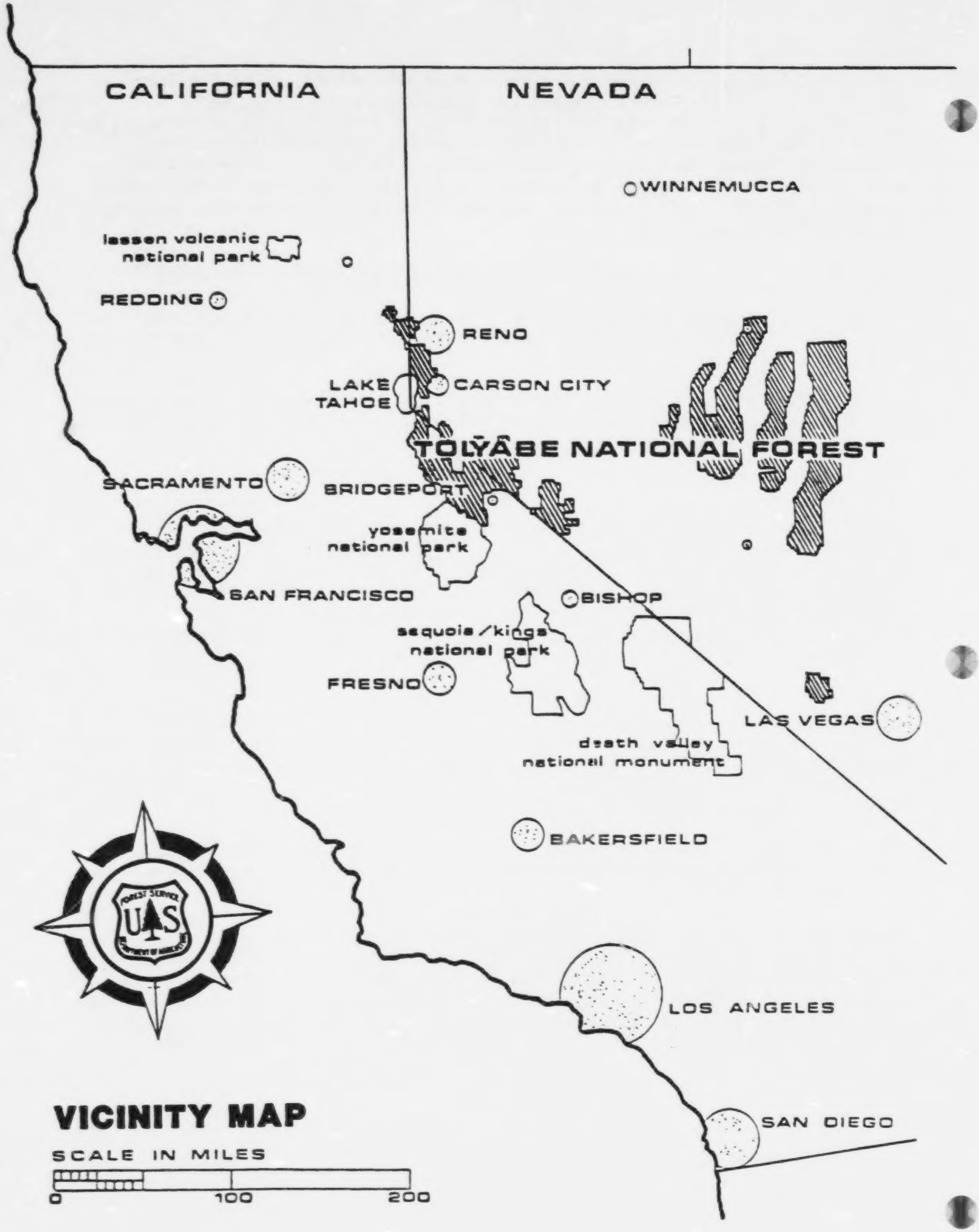
The FEIS that accompanies the Forest Plan will serve as the data base for subsequent environmental analyses. Furture projects will be tiered (40 CFR 1502.20) to the FEIS and assocciated documents by reference, rather than repeat information, where appropriate. The FEIS will address the issue and cover the broader based programs areas of management on the Forest. Subsequent environmental analyses for specific for specific projects will shorter and focus on the issues unique to the project.

LOCATION OF THE FOREST

Toiyabe National Forest administers 3,171,705 acres of National Forest System lands including 633,859 acres in California and 2,537,846 acres in Nevada. The Lake Tahoe Basin Management Unit administers 24,204 acres of Toiyabe National Forest.

The Forest Supervisor is headquartered in Sparks, Nevada. There are Ranger District offices at Carson City, Austin, Tonopah, and Las Vegas in Nevada and in Bridgeport, California.

Toiyabe National Forest manages lands located along the east slope of the Sierras; on the Paradise, Shoshone, Toiyabe, Toquima, and Monitor Ranges in central Nevada; and on Mt. Charleston near Las Vegas. The Forest provides a wide range of resources and opportunties, including timber, range, wildlife, watershed, developed and dispersed recreation, and wilderness. The majority of Nevada's population lives less than one hour drive from the Forest.



VICINITY MAP

CALIFORNIA
NEVADA
WINNEMUCCA
lassen volcanic national park
REDDING
RENO
LAKE TAHOE
CARSON CITY
TOIYABE NATIONAL FOREST
SACRAMENTO
BRIDGEPORT
yosemite national park
SAN FRANCISCO
BISHOP
sequoia / kings national park
FRESNO
LAS VEGAS
death valley national monument
BAKERSFIELD
LOS ANGELES
SAN DIEGO
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
SCALE IN MILES
0
100
200

ISSUES, CONCERNS, AND OPPORTUNITIES

Preparation of alternatives and the draft EIS started with public involvement. The scope of the issues and concerns to be addressed in the Forest Plan and draft EIS were identified from comments solicited through public meetings, individual and group contacts, mailings, and Forest Service staff. The issues, concerns, and opportunities were analyzed and summarized into planning questions to guide the development of alternatives and the draft EIS. The planning questions are an integral part of the planning process. They are addressed differently by the proposed action and the alternatives to it. The planning questions also provide a framework for considering the environmental consequences of implementing the proposed action and the alternatives.

The first step in preparing land and resource management plans is "identification of public issues and management concerns." This public involvement process is detailed in Appendix A of this Draft Environmental Impact Statement.

As a result of this process, eleven major planning questions (issue topic) were identified for Toiyabe National Forest.

PLANNING ISSUE 1	HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ASSIGNED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATION VISITORS?
PLANNING ISSUE 2	HOW SHOULD THE FOREST RESOURCE BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?
PLANNING ISSUE 3	THIS PLANNING QUESTION IS OF THREE PARTS: (A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER? (B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED? (C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?
PLANNING ISSUE 4	HOW SHOULD RANGELANDS ON TOIYABE NATIONALFOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD HORSES, AND OTHER RESOURCE USES AND VALUES?
PLANNING ISSUE 5	HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED, AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

PLANNING ISSUE 6 THERE ARE THREE PARTS TO THIS PLANNING QUESTION:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES, AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE? ACCESS SHOULD BE PROVIDED THROUGH PRIVATE LANDS TO THE NATIONAL FOREST WHERE THERE IS A PUBLIC NEED.

PLANNING ISSUE 7 HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FOREGONE?

PLANNING ISSUE 8 SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED ROADLESS AREA STUDY. IF SO, WHICH ONE(S)?

PLANNING ISSUE 9 HOW SHOULD TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

PLANNING ISSUE 10 HOW SHOULD TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT AND GENERAL POPULATION INCREASES IN CENTRAL NEVADA?

PLANNING ISSUE 11 WHAT ADDITIONAL AREAS ON TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

PLANNING RECORDS

The planning records contain the detailed information used in developing the Forest Plan as required in 36 CFR 219.10(h).

These planning records are available for inspection during regular business hours at Toiyabe National Forest Supervisor's Office, 1200 Franklin Way, Sparks, Nevada.

ORGANIZATION OF DEIS

The Draft Environmental Impact Statement is structured as follows:

Chapter II explains the process of developing alternatives, including benchmarks, and describes and compares alternatives, including the preferred alternative.

Chapter III describes the affected environment which is the land, resources, and activities managed by Toiyabe National Forest.

Chapter IV predicts the environmental consequences of implementing each alternative and includes discussions of the short and long-term effects and the irreversible and irretrievable commitments of the resources.

Chapter V lists the names and qualifications of the major contributors to the plan and EIS.

Chapter VI lists the agencies, organizations, and persons to whom the Forest sent copies of the EIS.

Chapter VII is the Glossary.

Chapter VIII is the Index.

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

INTRODUCTION

National Forest land and resource management planning is designed to identify and select for implementation an alternative for managing a National Forest which most nearly maximizes NET PUBLIC BENEFITS in an environmentally sound manner. This Draft Environmental Impact Statement contains "...a broad range of reasonable alternatives to provide an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits" (36 CFR 219.12)

Net public benefits are defined as...

> "the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not...consistent with the principles of multiple use and sustained yield."

The concept of net public benefits contains both priced yields (those quantitatively determined in marketplace) and non-priced yields (those possessing values which cannot be directly measured in the marketplace). Examples of priced yields are: the stumpage value of timber, the value of forage, the value of developed recreation opportunities, the in-ground value of minerals, the creation of jobs in the local community and payments to counties in lieu of taxes. Examples of non-priced yields are: protection of threatened and endangered species, protection of cultural resources, dispersed recreation opportunities and maintenance of soil productivity.

Alternatives are designed and analyzed to achieve their goals and objectives in a manner which achieves the greatest excess in the value of priced yields in relation to their cost while meeting all specified constraints and objectives for non-priced yields. They are also designed to achieve specified non-priced yields and to meet constraints at the least cost.

Within this document, the planning period will span fifty (50) years unless otherwise specified. Decade one spans 1986-1995, two 1996-2005, third 2006-2015, fourth 2016-2025, fifth 2026-2035.

There are other benefits which result from the management of the Toiyabe National Forest. These include local income and employment, lower price effects on consumers of forest products, and 25% returns to counties. These are distributive welfare effects of national forest production. Distributive effects vary with the mix and level of outputs produced on the Toiyabe National Forest. They are also influenced by policy decisions of Federal officials. These distributive effects cannot be assessed in terms of economic efficiency (PNV).

---

*Present net value is the difference between the discounted value of all priced yields and all Forest Service management investments and costs over the analysis period.

ALTERNATIVE DEVELOPMENT

An alternative is a combination of management prescriptions applied to specific land areas to produce given levels of goods, services and uses in response to a specific management philosophy. An alternative also includes a specific budget and other functions which support the management activities defined by the prescription. National Environmental Policy Act (NEPA) regulations (40 CFR 1502.14) and National Forest Management Act (NFMA) regulations (36 CFR 219.12(f)) establish guidelines for formulating alternatives.

NEPA regulations require rigorous exploration and objective evaluation of all reasonable alternatives including a "no action" alternative. They also require identification and discussion of alternatives eliminated from detailed study. NFMA regulations (36 CFR 219.12(f)) also require the formation of at least one alternative which responds to and incorporates the RPA Program. NFMA regulations state that the primary goal in formulating alternatives (besides complying with NEPA) is to provide an adequate basis for identifying the alternative that comes nearest to maximizing net public benefits (consistent with resource integration and management requirement).

Formulation of alternatives completes the first four planning actions in the NFMA planning process described in Chapter One. The following summarizes the process used on Toiyabe National Forest to formulate alternatives:

- Major public issues were identified through public involvement efforts. Management concerns were added to these public issues (Chapter 1).

- Public issues and management concerns were consolidated into a set of general planning questions which would guide subsequent steps. A summary of the public issues and management concerns listed by "Planning Question" (along with "Management Opportunities" to resolve issues and concerns) is contained in Appendix A.

- Multiple use management prescriptions, representing sets of compatible management practices, were developed to answer planning questions.

- Individual resource inventories were completed to identify site-specific areas having common environmental characteristics. Data was collected and stored in the Forest resource data base.

- Appropriate locations for applying possible management prescriptions were identified. Capability, suitability, and management opportunities of specific areas in the Toiyabe National Forest were considered in this step.

- Resource yields and their associated costs and values were developed for each prescription based on physical and biological factors for each area where the prescription was to be applied.

- Supply potentials for each resource were determined with the FORPLAN model. Various assumptions, constraints, and objectives were used to establish benchmarks for supply potentials of each resource during the Analysis of the Management Situation. Benchmarks were established for a minimum level, maximum constrained single resource levels and maximum present net values. Existing resource supply was compared to supply potentials of each benchmark. Opportunities to resolve public issues and management concerns were identified for each resource by comparing existing to potential production levels.

- Potential demand was estimated for the various resource activities. Indications of the need to change management direction as well as opportunities to change future emphasis were identified.

- Alternative direction statements were established to provide a broad range of options for future management of the Forest. These statements define the resource management intent for each alternative. They represent different ways to address the planning questions and resolve issues and concerns within the capability of the Forest.

- Constraints for each resource were quantified by translating broad direction statements for each alternative into specific estimates of the maximum or minimum level of goods and services to be produced.

- A linear program model, FORPLAN (refer to Appendix B), was used to estimate goods and services produced by each alternative. This model is a mathematical process that determines the most cost-efficient mix of prescriptions to achieve a desired goal. The model projects outputs and costs over time.

- Forest personnel validated projected outputs and feasibility of assigning management prescriptions to individual analysis areas based on their knowledge of on-the-ground conditions. This process included placing prescriptions with timber production objectives on the most highly productive commercial timber lands, and placing recreation and wildlife prescriptions on the most suitable acreage. A map displaying the distribution of management prescriptions to the Toiyabe National Forest was analyzed. Management conflicts caused by this distribution were reconciled through interaction between the Toiyabe National Forest Management Team, staff specialists and the Interdisciplinary Team. Conflict resolutions and on-the-ground feasibility resolutions were determined and the alternatives were re-analyzed.

- The last steps were repeated as necessary to arrive at a feasible range of alternatives.

BENCHMARKS

Benchmark level analyses were performed to (1) determine supply potentials for five resources (timber, range, wilderness, dispersed recreation and developed recreation), (2) derive reference points against which Toiyabe National Forest alternatives could be developed and (3) define the range within which feasible alternatives could be constructed (the "decision space"). Benchmarks also provide a basis for analyzing trade-offs between alternatives and analyzing the constraints imposed by laws and regulations.

They are the results of a systematic objective analysis primarily performed in FORPLAN. Four categories of benchmarks were developed for the Toiyabe National Forest: (1) minimum level, (2) current management, (3) maximum resource levels for timber, range,, dispersed recreation, developed recreation, and wilderness and (4) maximum present net values.

Of the benchmarks described below, all but current management and the maximum present net value (assigned values) benchmarks have been eliminated from further study. The reasons for not considering each benchmark in a more detailed analysis are given in the discussion of individual benchmarks. Appendix B summarizes benchmark level analyses. It displays how benchmark levels were modeled, the constraints and assumptions necessary for modeling and the economic and resource information from each benchmark level.

Minimum Level Benchmark

Minimum level benchmark is designed to estimate naturally occurring outputs and costs of maintaining the Forest as part of the National Forest system. Minimum level is a management strategy that would meet only the following statutory requirements: administration of unavoidable non-discretionary land uses, prevention of impairment of the productivity of the land and protection of the life, health and safety of incidental users.

Benchmark Disposition-This benchmark was eliminated from further study since, (1) it does not conform to existing legislation governing management of the Forest and, (2) it does not satisfactorily address issues and concerns. This benchmark was not modeled in FORPLAN. Yields and costs under this benchmark were estimated by resource specialists.

Current Management Benchmark

Current management benchmark represents the current program based on existing policies, standards and guidelines. It continues the present course of action based on established goals and objectives which have been modified to meet and respond to present and projected program and consumption levels.

Benchmark Disposition-Current management benchmark provides a basis for comparison of other alternatives.

It is also a calibration run to check the performance of yield tables, economic tables and constraints. This benchmark was examined in detail and becomes the no-action alternative (alternative A).

Maximum Timber Benchmark

This benchmark maximizes the production of timber with maintenance of viable wildlife populations and without permanent impairment of soil and water productivity. A "single resource emphasis" analysis was performed in FORPLAN to determine the timber production potential of the Toiyabe National Forest. A second step of this analysis involved rerunning the FORPLAN model to determine the most cost efficient set of prescriptions to achieve the maximum timber production level.

All land area classified as tentatively suitable for timber production was included.

There were no yield or budget constraints applied. There were no timber yields in excess of maximum expected use.

Benchmark Disposition-This benchmark was not considered in detail as it failed to meet many multiple resource requirements and to satisfy issues and concerns.

Maximum Dispersed Recreation Benchmark

This benchmark maximizes dispersed recreational opportunities in the Forest. "Single resource emphasis" analysis was used in the FORPLAN model to determine maximum dispersed recreation supply (in recreation visitor-days) without preference to any ROS class. A second analysis was performed in the FORPLAN model to determine the most cost efficient set of prescriptions to achieve this production level.

Constraints used to develop this benchmark are described in Appendix B.

Benchmark Disposition-This benchmark was not developed in detail. The existing supply of dispersed recreation opportunities far exceeds the anticipated demand for these opportunities in Toiyabe National Forest.

Maximum Developed Recreation Benchmark

This benchmark maximizes developed recreational opportunities on the Forest regardless of budgetary restrictions. "Single resource emphasis" analysis was used in the FORPLAN model to determine the maximum production level of developed recreation supply (in recreation visitor-days). A second analysis was performed in FORPLAN to determine the most cost efficient set of prescriptions to achieve this production level. Constraints used to model this benchmark can be found in Appendix B.

Benchmark Disposition-This benchmark was not considered in detail as it failed to meet many mutiple resource requirements and to satisfy issues and concerns.

Maximum Wilderness Benchmark

This benchmark maximizes wilderness recreational opportunities in the Toiyabe National Forest regardless of budgetary restrictions. "Single resource emphasis" analysis was used in the FORPLAN model to determine the maximum production level of wilderness opportunities (in recreation visitor-days). A second analysis was performed in FORPLAN to determine the most cost efficient set of prescriptions to achieve this production level. Constraints used to model this benchmark can be found in Appendix B.

This benchmark was not developed in detail because another alternative, (F), accomplished the maximization of wilderness and better coordinated other resources.

Maximum Present Net Value (Market Values) Benchmark

This benchmark maximizes present net value for all resources with established market values. In Toiyabe National Forest, these resources include timber and developed recreation.

Dollar values used in the economic analysis are based on "willingness to pay". Values for timber were based on historical data from timber sale reports. Developed recreation values were obtained from RPA values.

Distribution of the Toiyabe National Forest into management areas according to this benchmark was spatially infeasible. This benchmark meets the minimum management requirements and would not impair the productivity of the land. No restraints were applied to the budget or the production of resources. Yields in excess of demand trends were not valued in the economic analysis. The specific constraints used in the FORPLAN model for this benchmark are shown in Appendix B.

Benchmark Disposition-This benchmark was dropped from further study because it did not assign values to dispersed recreation, wilderness, water, or wildlife and fish and therefore produced by far the lowest present net value of all alternatives.

Maximum Present Net Value (Assigned Values) Benchmark

This benchmark maximizes present net value for all resources with established market or assigned values. In Toiyabe National Forest, these resources include timber, developed and dispersed recreation, wilderness, water, wildlife and fish. Dollar values are based on "a willingness to pay". RPA values serve as the standard for all outputs except timber. Timber values were calculated based on historical data.

This benchmark is spatially feasible. It meets the minimum management requirements and would not impair the productivity of the land. No restraints were applied to the budget or the production of resources. Yields in excess of demand trends were not valued in the economic analysis. The specific constraints used in the FORPLAN model for this benchmark are shown in Appendix B.

This benchmark is used as a standard to evaluate present net values of alternatives considered in detail.

This evaluation is shown on pages B-85 thru B-95 in Appendix B. Differences in the present net values of this benchmark and alternatives reflect the "opportunity costs" associated with those constraints imposed on alternatives to achieve their stated philosophy, goals and objectives. This benchmark forms alternative C.

Maximum Grazing Resource

Production of forage and livestock was emphasised within the minimum constraints of law without impairing range production. Reasonable biological potential was developed and was not constrained by budget or policy.

Benchmark Disposition-This benchmark was not considered in detail as it failed to meet many multiple resource requirements and to satisfy issues and concerns.

Minimum Wilderness

This benchmark minimized the acres of areas that were roadless going to recommended wilderness. All other outputs were allowed to seek a level that would maximize the net public benefit.

Benchmark Disposition-This benchmark was not developed in detail because another alternative accomplished the minimum wilderness objective and better coordinated the other resources.

Economic analysis of Benchmarks

This analysis described the various benefits, costs and the present net value of each benchmark level. Table II-1 compares PNV of priced outputs. Table II-2 compares PNV and nonpriced outputs, Table II-3 is a narrative comparison of PNV.

PNVs of all the levels range from 53 percent (minimum level) to 169 percent (PNV-all values) of the existing situation.

When the PNV of the minimal level is compared to the other levels, naturally occurring outputs account for 30 percent of the PNV. Benefit cost ratios range from a low of 4.4 to 1 (max timber) to a high of 8.9 to 1 (max wilderness). Management investment will influence the PNV, especially in the area of range and developed recreation. A large percentage of benefits in many of the levels is coming from wildlife and fisheries. This output requires a relatively low investment for high returns.

Most of the PNV for each level is derived from range, wilderness, wildlife, fisheries and dispersed recreation. Timber will have little influence (8 out of 10 alternatives harvest no timber).

Table II-1 Present Net Value and Priced Outputs for Benchmarks
(1978 Dollars Inflated to 1/1/82)
Figures Shown in M$
Discount Rate is 4%

BENCHMARKS	PNV	PVC	PVB	PVB by Resources						PVC by Major Cost Categories								
				Rec.	Wilder	Fish & Widlf	Grazing	Tim-1/ ber	Other *	S&W	Minerals	Rec.	Wilder	Fish& Wldlf	Grazing	Timber 1/	Roads	Other *
MIN LEVEL	274.2	49.5	323.7	127.5	231.2	172.9	0.0	0.0	39.3	1.6	4.0	4.3	1.3	1.7	.3	.9	0.0	35.4
PNV-MARKET	490.9	122.8	613.7	234.2	59.5	190.9	37.4	3.2	88.5	1.7	4.5	29.5	1.2	1.9	9.1	4.9	4.9	65.1
PNV-ALL	990.0	152.1	1,142.1	269.2	198.5	402.2	35.5	2.0	234.7	5.1	4.3	14.2	4.2	4.4	9.7	4.5	16.7	83.7
MAX WILDER	877.2	98.5	975.7	217.0	266.1	347.6	35.3	1.9	107.8	3.9	4.3	11.6	4.9	3.5	9.6	3.5	2.0	55.2
MIN WILDER	914.2	154.5	1,068.6	272.1	23.2	319.5	35.1	2.5	416.2	7.4	4.4	19.5	1.3	6.8	10.1	3.8	17.6	83.6
CURRENT	508.2	129.8	638.0	216.6	102.5	202.6	37.4	12.9	66.6	2.6	9.8	14.9	1.9	2.9	9.6	10.3	12.1	71.0
MAX TIMBER	839.6	188.1	1,027.7	284.3	176.4	360.2	36.5	25.9	144.4	3.3	4.2	24.2	3.9	3.3	9.8	20.0	40.6	78.8
MAX RANGE	729.2	143.6	872.7	277.0	126.4	304.9	39.8	3.8	120.8	2.6	5.1	30.5	2.2	2.7	10.7	6.5	7.8	75.5
MAX DEV	893.8	162.1	1,055.9	291.1	189.5	385.3	36.9	2.7	150.4	3.5	4.3	31.1	4.1	3.2	9.8	5.1	17.6	83.4
MAX DISP	918.9	153.3	1,072.2	271.7	29.9	329.1	35.1	2.4	404.0	6.9	4.4	18.7	1.9	6.6	9.9	3.8	17.6	83.5

1/ Includes sawtimber, Christmas trees, pinyon nuts, post & poles, and fuelwood

PNV - Present Net Value (4%)
PNC - Present Net Costs (4%)
PNB - Present Net Benefits (4%)

Table II-2 PRESENT NET VALUE AND NONPRICED OUTPUTS
(1978 Dollars Inflated to 1982 Dollars)
(ALL DOLLARS IN MM$ - TEN YEAR PERIOD TOTAL)

Benchmarks	PNV	PVC	PVB	DEER NUMBERS	FISH M-LBS	WLDRNSS M-ACRES	ROS-SPM M-ACRES	ROS-SPNM M-ACRES
CURRENT PROGRAM	508.2	129.8	638.0					
1986				280,000	113.5	209.8	1087.1	1378.1
1995				279,000	113.0	209.8	1087.1	1378.1
2005				277,000	113.0	209.8	1087.1	1378.1
2015				277,000	113.0	209.8	1087.1	1378.1
2030				277,000	113.0	209.8	1067.1	1378.1
MAX TIMBER	839.6	188.1	1,027.7					
1986				290,000	113.5	1463.4	1087.1	1378.1
1995				316,000	119.0	1463.4	795.5	991.1
2005				326,000	124.0	1463.4	649.7	800.1
2015				326,000	124.0	1463.4	503.9	609.1
2030				326,000	124.0	1463.4	358.1	423.1
MAX DEVELOPED	893.8	162.1	1,055.9					
1986				290,000	113.5	1463.4	1087.1	1378.1
1995				303,000	116.0	1463.4	1087.1	1378.1
2005				303,000	119.0	1463.4	1087.1	1378.1
2015				303,000	119.0	1463.4	1087.1	1378.1
2030				303,000	119.0	1463.4	1087.1	1378.1
MAX DISPERSED	918.9	153.3	1,072.2					
1986				290,000	113.5	488.7	1087.1	1378.1
1995				316,000	117.0	468.7	795.5	991.1
2005				326,000	1240.0	488.7	649.7	800.1
2015				326,000	1240.0	488.7	503.9	609.1
2030				326,000	1240.0	488.7	358.1	423.1
MAX RANGE	729.2	143.6	872.7					
1986				290,000	113.5	339.3	1087.1	1378.1
1995				321,000	119.5	339.3	839.5	1070.1
2005				333,000	120.0	339.3	715.7	918.9
2015				333,000	124.0	339.3	591.9	767.5
2030				333,000	126.0	339.3	468.1	621.0
MAX WILDERNESS	877.2	98.5	975.7					
1986				290,000	113.5	2104.0	1087.1	1378.1
1995				303,000	116.0	2104.0	1047.1	1413.1
2005				303,000	119.0	2104.0	1027.1	1433.1
2015				303,000	119.0	2104.0	1007.1	1453.1
2030				303,000	119.0	2104.0	987.1	1478.1

Benchmarks	PNV	PVC	PVB	DEER NUMBERS	FISH M-LBS	WLDRNSS M-ACRES	ROS-SPM M-ACRES	ROS-SPNM M-ACRES
MAX PNV- MARKET	490.9	122.9	613.7					
1986				290,000	113.5	371.8	1087.1	1378.1
1995				297,000	115.0	371.8	795.5	991.1
2005				297,000	117.0	371.8	649.7	800.1
2015				297,000	117.0	371.8	503.9	609.1
2030				297,000	117.0	371.8	358.1	423.1
MAX PNV - ALL	990.0	152.0	1,142.1					
1986				290,000	155.6	1464.2	1087.1	1478.1
1995				320,000	119.0	1464.2	1087.1	1478.1
2005				333,000	120.0	1464.2	1087.1	1478.1
2015				333,000	124.0	1464.2	1087.1	1478.1
2030				333,000	126.0	1464.2	1087.1	1478.1

Table II-3 Present Net Value and Qualitative effects
(1978 Dollars Inflated to 1/1/82)
Figures Shown in M$
Discount Rate is 4%

BENCHMARKS	PNV	PVC	PVB	Narrative
Current	503.2	129.8	633.0	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized wilderness acres will total 209 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Max Timber	832.5	138.1	1,020.6	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized wilderness acres will total 1,463 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Max Grazing	702.1	143.5	972.7	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized wilderness acres will total 339 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Max Developed	893.7	142.0	1,055.8	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized wilderness acres will total 1,463 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Max Dispersed	913.9	153.2	1,072.2	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized wilderness acres will total 438 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Max Wilderness	377.2	96.1	975.6	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 2,104 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Min Wilderness	914.1	154.4	1,065.6	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized wilderness acres will total 0 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
PNV Market	490.8	122.8	613.7	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1,497 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
PNV-Assigned	990.0	152.0	1,142.1	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1,464 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.
Min Level	274.2	49.4	323.6	Within this benchmark, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 0 M Ac, water quality will remain the same as the current situation, while soil productivity will be maintained.

Benchmark Analysis By Primary Resource Element

In this analysis the existing situation is used as a point of comparison. Selected outputs are displayed in Table II-4 for purpose of comparison.

Table II-4 Status of Selected Average Annual Outputs for the Existing Situation

Output	Units	Quantity
Sawtimber	MCF	.92
Fuelwood	MCF	602.00
Developed Recreation Use	MRVD	560.80
Dispersed Recreation Use	MRVD	2438.30
Wilderness	MACRES	344.70 1/
Wilderness Use	MRVD	300.50
Wildlife and Fish	WFUDS	484.70
Permitted Grazing	MAUM	98.40

The maximum timber benchmark produces almost three times the volume of timber the current program does. All other benchmarks produce no timber when allowed to maximize their respective resources.

Table II-5 Timber Management Outputs of Benchmark Levels

Level	Average Annual Sawtimber Offered (50 year period) (MMCF)
Current Program	.92
Maximum Timber	2.62
Maximum Grazing	0.00
Maximum Dispersed Recreation	0.00
Maximum Developed Recreation	0.00
Maximum Wilderness	0.00
Maximum PNV (Market)	0.00
Maximum PNV (All)	0.00
Minimum Wilderness	0.00
Minimum	0.00

The two maximum recreation runs (dispersed and developed) produce approximately 2.5 times more developed recreation and 1.5 times more dispersed recreation. Beside the maximum developed recreation, all other benchmarks produce higher outputs in developed recreation over current.

1/ Acres include total wilderness, both new and existing.

Table II-6 Recreation Use Projections (MRVDs) of Benchmark Levels

Level	Average Annual MRVDs	
	Developed	Dispersed
Current Program	560.80	2438.80
Maximum Timber	1027.20	2392.30
Maximum Grazing	1258.80	2060.60
Maximum Dispersed Recreation	618.40	4058.64
Maximum Developed Recreation	1377.00	1401.78
Maximum Wilderness	629.20	1939.52
Maximum PNV (Market)	1370.00	1401.78
Maximum PNV (All)	630.00	2528.00
Minimum Wilderness	629.20	3771.20
Minimum	485.00	1424.20

The maximum wilderness benchmark will produce almost four times the amount of RVD's over the current situation, with the PNV all values benchmark producing about three times more. The market PNV produces slightly less than current, while both the minimum wilderness and minimum benchmark have outputs coming only from the existing wilderness.

Table II-7 Wilderness Outputs by Benchmark Levels

Level	M Acres	Aver. Annual MRVDs
Current Program	209.80	300.50
Maximum Timber	1,463.70	797.20
Maximum Grazing	339.30	569.20
Maximum Dispersed Recreation	488.70	133.69
Maximum Developed Recreation	1,463.70	855.46
Maximum Wilderness	2,104.50	1184.20
Maximum PNV (Market)	1,497.70	259.17
Maximum PNV (All)	1,464.20	888.00
Minimum Wilderness	0.00	100.10
Minimum	0.00	100.10

Maximum dispersed recreation benchmark produces approximately 2.5 times more total WFUDs over the current situation. The minimum benchmark and PNV-market values are about 40 percent less than present outputs.

Table II-8 Average Annual Outputs of Wildlife by Benchmark Levels

Level	MWFUDS
Current Program	484.70
Maximum Timber	675.00
Maximum Grazing	560.60
Maximum Dispersed Recreation	1036.00
Maximum Developed Recreation	746.00
Maximum Wilderness	622.20
Maximum PNV (Market)	321.00
Maximum PNV (All)	945.00
Minimum Wilderness	948.80
Minimum	288.70

The current program produces 97 percent of the maximum range benchmark in the domestic livestock, but only 72% on the wild free roaming horses and burros. All benchmarks except minimum produce within 90% of the maximum range benchmark in domestic livestock AUM's. The minimum wilderness benchmark produces the largest output of wild free roaming horses and burros.

Table II-9 Average Annual Grazing Production by Benchmark Levels

Level	Permitted Grazing Use (MAUMs)
Current Program	98.40
Maximum Timber	96.40
Maximum Grazing	101.60
Maximum Dispersed Recreation	91.90
Maximum Developed Recreation	97.42
Maximum Wilderness	92.50
Maximum PNV (Market)	99.93
Maximum PNV (All)	92.80
Minimum Wilderness	91.90
Minimum	77.20

PRESENTATION OF ALTERNATIVES

Alternatives Considered But Eliminated From Detailed Study

A number of alternatives were considered in the planning process but were eliminated from detailed study. FORPLAN and other computer programs were used to predict yields associated with each of these alternatives. Brief write-ups of these alternatives are included in the planning records.

Four alternatives were eliminated from detailed study as they produced only minor differences in yields from the alternatives selected for detailed study.

(1) Provisional Alternative A-1 - This alternative was designed to produce a mix of goods and services that could be produced with a constrained budget based on fiscal years 1980-1982. This alternative would not meet minimum management requirements (MMR) with regards to long term soil productivity. Soil productivity would not be maintained due to only 85% of the unsatisfactory rangelands being brought into the satisfactory class by 2030.

(2) Provisional Alternative P-1 - This alternative was a departure analysis of the preferred alternative and was designed to allow departure from allowable sale quantity of alterative P to attempt to improve age class distribution.

(3) Provisional Alternative F-1: This alternative was designed to emphasize developed and dispersed recreation, minerals, wildlife management and protection while maintaining livestock and wild free roaming horses and burros at close to current levels.

(4) Provisional Alternative H-1: This alternative was designed to emphasize all outdoor recreation activities, timber management, wildlife management and protection while maintaining livestock and wild free roaming horses and burros at the current level.

All alternatives were considered for application of departure using the analysis criteria contained in the 1920 section of the Forest Service Manual.

Prior to the California Wilderness Act of 1984, the forest had developed alternatives that would evaluate all roadless areas for wilderness in detail. The California Wilderness Act released all but four (4) areas in California from further consideration in this round of forest planning.

Alternatives Considered In Detail

Nine alternatives (including the preferred alternative) were formulated and selected for detailed analysis to address specific public issues and management concerns or requirements of laws, regulations or policies. Goals were developed for several alternatives after assessing the current situation, determining resource potentials and reviewing issues and concerns. These goals served as a nucleus for (1) formulating alternatives, (2) providing a link between alternatives and major issues and (3) guiding the development of the FORPLAN model.

Alternatives considered in detail provide a wide range of land uses and production of goods and services. The bar graphs on pages II-132 through II-170 display the range of resources for the nine alternatives. Different philosophies or goals are highlighted in the distribution of acreages to management areas. The nine alternatives were labeled from A thru E, with a break for P, the perferred alternative, and then from F thru H. Each alternative description includes the goal (management philosophy) and objectives to be achieved, yields, time frames, costs, benefits, management area assignment and environmental consequences of implementation.

Description of Each Alternative

Alternative development begins with the maximum present net value (assigned values) benchmark (considered the ideal). In modeling any alternatives, certain constraints may be removed and/or others added to achieve the goals and objectives of that alternative.

Alternatives (and benchmarks) prescriptions contain the necessary constraints designed to maintain viable populations of native vertebrate and plant species and to maintain the productivity of the land. These minimum management requirements (MMRs) are described in Appendix B (beginning on page B-85).

All alternatives also contain specific modeling constraints:

(1) Culmination of Mean Annual Increment (CMAI): The earliest age of final harvest cut must be greater than or equal to the age of CMAI for that working group. This constraint is required by 36 CFR 219.16 (a) (2) (iii).

(2) Non-declining yield (NDY): The harvest volume for any decade shall be equal to, or greater than, the harvest volume for the preceding decade. This constraint is required by 36 CFR 219.16 (a) (1).

(3) Long Term Sustained Yield Link (LTSY-L): The harvest in the last period of the planning horizon must be less than or equal to the long term sustained yield calculated internally in FORPLAN. This constraint is required by 36 CFR 219.16 (a) (1). It leads to stable solutions in the out periods and prevents an erroneous calculation of the long term sustained yield capacity due to internal assumptions of FORPLAN.

(4) Demand Cut-offs: These constraints prevent the valuation of the specific resource yields produced in excess of RPA demand. Demand constraints are placed on dispersed recreation, wilderness and wildlife species. This constraint is also necessary to ensure that the assumption of a horizontal demand curve is not violated.

ALTERNATIVE A
(NO ACTION - CURRENT BUDGET)

This alternative represents the current management of the Toiyabe National Forest based on existing policies, standards and guidelines as defined by 1982 program. Planning regulations (36 CFR 219) require the development of a "no action" alternative for any land management plan. The "no action" alternative within land management planning is defined as the current program of management. Alternative A by definition includes the decisions contained in the California Wilderness Bill. That is: Wilderness - 342,400 acres including the Hoover, Carson-Iceberg, and Mokelumne Addition (ie. Raymond Peak area in California),and the RARE II Wilderness Recommendations of Excelsior and Arc Dome in Nevada. Further Planning areas identified in the California Wilderness Act and the Nevada RARE II Further Planning Area (Sweetwater) are carried as further planning and protected.

The objective of this alternative is to produce the "current program" of managment of the Toiyabe National Forest. Fiscal years 1980-82 program of work and the Toiyabe Unit plans served as the model for this alternative. Management direction of objectives were only altered where new regulations or policy had rendered them obsolete.

Current management produces a moderate mixture of yields with no single resource managed intensively or emphasized to the detriment of another.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-10 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-11 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative A.

To prepare this alternative, it was necessary to assume that existing standards, guidelines and policies would continue over the planning horizon (50 years). [Refer to the _Analysis of the Management Situation on the Toiyabe National Forest_ for specific standards, guidelines and policies.]

---

* A horizonal demand curve is an economic concept. Under a horizontal demand curve, the relationship between price and quantity are constant at any given point in time. Within the Toiyabe FORPLAN model, the price of a unit of timber does not fluctuate by the amount supplied.

TABLE II-10 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE A
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	9.2	9.2	9.2	9.2	9.2
Value (MM$)	3.4	3.5	3.4	3.4	3.5
Fisheries*					
Yield (M WFUDs)	2329.	2282.	2292.	2292.	2292.
Value (MM$)	41.	41.	41.	41.	41.
Wildlife*					
Yield (M WFUDs)	1186.	1179.	1182.	1182.	1182.
Value (MM$)	29.	29.	29.	29.	29.
Minerals					
Operating plans	2520.	2520.	2520.	2520.	2520.
Acres Reclaimed	4840.	4840.	4840.	4840.	4840.
Acres Disturbed	13630.	13630.	13630.	13630.	13630.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	5.6	5.6	5.6	5.6	5.6
Value (MM$)	.66	.66	.66	.66	.66
Range					
Livestock (M AUM)	984.	984.	984.	984.	984.
Value (MM$)	13.	13.	13.	13.	13.
Wild horses (M AUM)	43.	43.	42.	42.	42.
Dispered Rec.*					
Yield (M RVDs)	15914.	18920.	20884.	20884.	20884.
Value (MM$)	48.	57.	63.	63.	63.
Developed Rec					
Yield (M RVDs)	8920.	5440.	4560.	4560.	4560.
Value (MM$)	28.	16.	14.	14.	14.
Wilderness*					
Yield (M RVDs)	4424.	4424.	4424.	4424.	4424.
Value (MM$)	35.	35.	35.	35.	35.
Undiscounted Costs (MM$)	45.	45.	44.	44.	44.
Undiscounted Value (MM$)	218.	218.	221.	221.	221.

Total PNW at 4% for five periods =382.1 (1978 dollars)
Long Term Sustained Yield Capacity = 1.06 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-11 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE A (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	892.0	544.0	456.0	456.0	456.0
Dispersed Recreation Use	Thousand RVDs	1591.0	1892.0	2083.4	2088.4	2088.4
Wilderness Use	Thousand RVDs	442.0	442.4	442.4	442.4	442.4
WILDERNESS						
New Wilderness acres	Thousand Acres	209.8	209.8	209.8	209.8	209.8
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres	147.4	147.4	147.4	147.4	147.4
Primitive		1378.1	1378.1	1373.1	1373.1	1373.1
Semi-primitive non-motorized		1087.1	1087.1	1037.1	1087.1	1037.1
Semi-primitive motorized		536.3	536.3	536.3	536.3	536.3
Roaded natural		21.3	21.3	21.3	21.3	21.3
Rural						
VISUAL QUALITY	Thousand Acres					
Preservation		345.3	345.3	345.3	345.3	345.3
Retention		396.5	396.5	392.1	387.7	383.3
Partial Retention		1151.0	1151.0	1111.4	1071.8	1032.2
Modification		1053.6	1053.6	1093.2	1132.8	1172.4
Max. Modification		225.3	225.3	229.7	234.1	238.5
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	1.9	1.9	1.9	1.9	1.9
Management Indicator Species	Thousand Animals					
Goshawk (pairs)	Breeding Pairs	66.0	60.0	60.0	60.0	60.0
Pine marten	Thousand Animals	1.0	.9	.9	.9	.9
Paiute cutthroat trout **	Fish/mile/stream	230.0	300.0	450.0	500.0	500.0
Lahontan cutthroat trout **	Fish/mile/stream	200.0	275.0	450.0	500.0	500.0
Williamson's sapsucker (pairs)	Breeding pairs	3.4	2.7	2.7	2.7	2.7
Hairy woodpecker (pairs)	Thousand Animals	5.0	4.4	4.4	4.4	4.4
Mule deer	Thousand Animals	28.0	27.9	27.7	27.7	27.7
Sage grouse	Thousand Animals	17.3	17.3	17.3	17.3	17.3
Yellow warbler (pairs)	Thousand Animals	6.0	5.0	4.8	4.5	4.0
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates(BCI)		7.5	7.0	7.0	7.0	7.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	230.0	227.6	227.8	227.8	227.8
Wilderness	Thousand of WFUDs	119.0	119.5	119.5	119.5	119.5
Improvement	Thousand of WFUDs	6.1	6.1	8.1	8.1	8.1

TABLE II-11 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE A (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1985 1990	1991 2000	2001 2010	2011 2020	2021 2030
Domestic Livestock (Capacity)	Thousand AUMs	101.6	101.6	101.6	101.6	101.6
Domestic Livestock (Permitted Use)	Thousand AUMs	98.4	98.4	98.4	98.4	98.4
Wild horse & Burros (Permitted Use)	Thousand AUMs	4.3	4.3	4.2	4.2	4.2
TIMBER						
Program Sales Offered 2/	Thousand CF	924.8	924.8	924.8	924.8	924.8
	Millions BF	6.2	6.2	6.2	6.2	6.2
Reforestation Artificial	Thousand Acres	.166	.166	.076	.056	.055
Timber Stand Improvement	Thousand Acres	.125	.125	.125	.125	.125
Fuelwood	Thousand CF	561.0	561.0	561.0	561.0	561.0
	Thousand Cords	6.2	6.2	6.2	6.2	6.2
WATER						
Meeting Water Quality Standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	.8	.8	.8	.8	.8
Prescribed burning for Range	Thousand Acres	.5	.5	.5	.5	.5
Prescribed burning for Wildlife	Thousand Acres	1.2	1.2	1.2	1.2	1.2
MINERALS						
Leases	Number of Leases	65.0	65.0	65.0	65.0	65.0
Operating Plans	Number of Plans	252.0	252.0	252.0	252.0	252.0
Acres Reclaimed	Thousand Acres	.5	.5	.5	.5	.5
Acres Distrubed	Thousand Acres	1.4	1.4	1.4	1.4	1.4
HC&D						
Human Resources Program	Person years	143.0	143.0	143.0	143.0	143.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	360.0	360.0	360.0	360.0	360.0
Property Boundary Lines						
Location	Miles	11.0	8.3	8.4	8.2	8.2
Maintenance	Miles	0	2.8	2.8	2.7	2.7

TABLE II-11 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE A (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	13.3	13.3	13.3	13.3	13.3
FACILITIES						
Trail Const./Reconst.	Miles	0	0	0	0	0
Arterial/Collector Road Construction	Miles	1.7	1.2	.9	1.0	.4
Arterial/Collector Road Reconst.	Miles	7.0	7.7	6.3	7.5	7.9
Timber Purch. Road Construction	Miles	3.5	2.2	1.5	2.0	1.2
Timber Purch. Road Reconstruction	Miles	2.7	3.0	3.2	2.8	3.5
BENEFITS						
Recreation						
Developed		2676.0	1632.0	1368.0	1368.0	1368.0
Dispered		4774.0	5676.0	6265.0	6265.0	6265.0
Wilderness		3539.0	3539.0	3539.0	3539.0	3539.0
Range		1291.0	1291.0	1291.0	1291.0	1291.0
Timber		341.0	348.4	341.5	342.1	353.8
Other Timber 1/		102.0	102.0	102.0	102.0	102.0
Wildlife (WFUDs)		7020.0	6983.0	6987.0	6987.0	6987.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		4434.0	4482.0	4420.4	4429.2	4419.0
Protection		601.0	601.0	599.0	599.0	599.0
General Administration		662.0	662.0	662.0	662.0	662.0
Total Roads		423.0	412.9	407.8	419.3	420.0
App. Fund Roads		328.0	320.2	318.7	328.1	325.4
Purchaser Credit Roads		95.0	92.7	89.1	91.2	94.6
Recreation						
Developed Construction		0	0	0	0	0
Developed Reconstruction		0	0	0	0	0
Dispersed trail heads		0	0	0	0	0
Dispersed trails		0	0	0	0	0
Non-Forest Service Costs (exc. roads)		404.0	404.3	404.3	404.3	404.3
Returns to Treasury		1293.0	1257.0	1244.0	1243.0	1248.0

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood
2/ The timber remains the same from the fifth to the twentieth period.

RESPONSE OF ALTERNATIVE A TO MAJOR ISSUES

PLANNING ISSUE 1 :

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be reconstruction of existing sites within this alternative. There will be an emphasis on improving midweek use of facilities at Mt. Charleston.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized, and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,394	3.660
Semi-primitive non-motorized	1,378,108	14.640
Semi-primitive motorized	1,087,100	14.649
Roaded natural	536,310	91.500
Rural	21,272	58.600

This alternative offers the same mixture of acreage and recreational opportunities as the present ROS settings. Scenic values in this alternative will be the same as presently exist due to moderate timber harvesting and a moderate level in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild, scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2 :

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 9.2 million cubic feet of timber in the first period and has an annual long-term sustained yield capacity of 1.06 million cubic feet. Timber will come mainly from Dog Valley, Walker and Alpine Co. Within the fifty year planning horizon, decade volume of timber harvested remains constant at 9.2 million cubic feet per period.

Over the fifty year period, 46.00 million cubic feet of sawtimber in the Mixed Conifer and Jeffrey pine working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed. Uneven-aged management would be used on a case by case basis for special management objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 86 years for the Mixed Conifer, 106 years for Jeffrey pine and 159 years for the Lodgepole pine. A small portion of the timber volume produced in this alternative is primarily from management activities directed at indirect wildlife habitat improvement projects.

Within this alternative, 11,580 acres of regeneration over the fifty year period will be by natural methods, with the remaining 3,910 acres being by artificial means. The use of these systems is the most cost efficient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group and although unsuitable for timber production, it does produce other timber products in Central Nevada with outputs over the fifty year period of 2,968 tons of Pinyon nuts, 196,900 Christmas trees and 25,050 posts and poles in addition to the sawtimber output. In addition, 32 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is constant at 5,610 MCF from the first period thru the fifth period. The total for the planning horizon is 28,050 MCF. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commercial timber lands will total 48,317 acres in this alternative.

Continued timber harvesting of the Mixed Conifer and Jeffrey Pine working groups will result in a decrease of acres available for old growth habitat.

PLANNING ISSUE 3 :

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extent practicable. Management programs would be designed to capitalize on opportunities to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands.

Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities, or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Increased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will increase. This will result from minimum management requirements not being met in range, resulting in less acres available in satisfactory condition.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,920,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs will remain constant at 984,000 AUM per period. Wild free-roaming horse and burro AUMs will decrease from 43,000 AUMs in the first period to 42,250 in the fifth period, for a total of 212,000 AUMs over the fifty year period. Range improvement and range management work on 24,000 acres will be accomplished by prescribed fire and the remaining acres by other methods of manipulating vegetation over the fifty year period. Extensive management would occur on 40 percent of the acres, while intensive management would total 60 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced slightly as range condition improves and wildlife habitat improvements are completed. Elk population in central Nevada is expected to level off within 20 years. All allotment management plans will be completed and implemented by 2000. Approximately 90% of the range will be in satisfactory condition by 2030. Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals will increase.

Because of the range demands of domestic livestock, the riparian areas will come under increased use. Decreased funding of range projects will allow less coordination of uses in riparian areas. The acres of direct wildlife habitat improvement over the current situation would maintain riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6, and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 1,683.0 M acres of roadless areas not being designated as wilderness could result in an increase of road construction due to mineral exploration.

Roads constructed for mining activitites normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

This alternative has 35.0 miles of local road construction and 27 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (both local and arterial and collector) for the fifty year planning horizon would require 155.1 miles of new construction and 516.3 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther Pass and Armstrong Pass. Specific project location will be handled through the Environment Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 12,210 operating plans over the 50 year planning period. The same funding in this alternative, as is presently being done for the minerals program, will result in the same management and administration level in the Supervisor's office and at the district level. This alternative will have 70% (8547 plans) with compliance checks done on both the ongoing and future projects for the fifty year period based on complexity of projects or areas with high resource or public safety values.

This alternative would have 209,800 acres of roadless areas designated as wilderness recommendation. High mineral potential lands, 149,019 acres, would be designated for wilderness recommendation. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resource values. There will be medium response to the 12,210 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California

Wilderness Act of 1984. The forest has 135.1 M acres of wilderness and this alternative will recommend an additional 209.8 M acres in Nevada. An additional 235.2 M acres would remain in further planning status under this alternative. This is 11 percent of the roadless areas identified thru public involvement. Within this total recommendation, 209.8 M acres are considered high quality wilderness (see Appendix C), while 149,000 acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative A provides a mixture of wildlife habitats. The level in this alternative of timber harvesting will favor some early successional wildlife species. Wildlife user-days would total 7,655,000 for the fifty year planning horizon. Fishing opportunities would total 15,516,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 2000 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2005.

This alternative will have 99,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. This work will be accomplished by the use of prescribed fire on 47,920 acres with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 406,950 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will increase.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an Issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Reconstruction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 209.8 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE B
(MARKET EMPHASIS)

This alternative will emphasize developed recreation, livestock grazing and a high output of sawtimber volume while increasing fire protection. The objective of this alternative is, (1) to emphasize developed recreation thru the reconstruction of current sites and the construction of new sites, (2) to emphasize minerals thru increased management and administration, (3) to increase the grazing capacity by increase funding to range improvement projects, (4) increase timber management thru increased harvesting and (5) emphasize protection by implementing the most cost effective level of fire protection and the Sierra initiative.

Seven (7) assumptions were made to model this alternative:

(1) Suitable sites for the construction of new developed recreation sites are present on the Toiyabe National Forest.

(2) Adequate funding will be available.

(3) Concern by the public along the Sierra Front for better fire protection will continue to increase.

(4) Demand for developed recreation will continue to exceed the current supply along the Sierra Front and at Mount Charleston.

(5) Funds for increasing the grazing capacity will be available.

(6) Coordination requirements between the mineral resource and other forest resources will increase.

(7) All acres tentatively suitable for timber management will be available.

Three management goals were outlined by this alternative:

(1) Projected demand for developed recreation will be met by the forest.

(2) Visual quality will be at acceptable level in sensitive areas.

(3) Increase sawtimber volume to a high level.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-12 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-13 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists management area prescription associated with Alternative B.

TABLE II-12 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE B (TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	18.5	18.6	18.6	18.6	18.6
Value (MM$)	6.7	6.3	6.2	5.9	5.3
Fisheries					
Yield (M WFUDs)	3340.	3674.	3940.	4212.	4355.
Value (MM$)	59.	65.	70.	75.	77.
Wildlife					
Yield (M WFUDs)	1624.	1791.	1924.	2060.	2131.
Value (MM$)	40.	44.	47.	50.	52.
Minerals					
Operating plans	2640.	2640.	2640.	2640.	2640.
Acres Reclaimed	9020.	9020.	9020.	9020.	9020.
Acres Disturbed	14330.	14330.	14330.	14330.	14330.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	6.4	6.4	6.4	6.4	6.4
Value (MM$)	.75	.75	.75	.75	.75
Range					
Livestock (M AUM)	957.	1000.	1007.	1007.	1007.
Value (MM$)	12.5	13.1	13.2	13.2	13.2
Wild horses (M AUM)	75.	75.	75.	75.	75.
Dispered Rec.*					
Yield (M RVDs)	21689.	23969.	25781.	27642.	28618.
Value (MM$)	65.	72.	77.	83.	86.
Developed Rec.					
Yield (M RVDs)	10920.	11420.	12080.	13140	13860.
Value (MM$)	58.	59.	61.	64.	66.
Wilderness*					
Yield (M RVDs)	1001.	1001.	1001.	1001.	1001.
Value (MM$)	8.0	8.0	8.0	8.0	8.0
Undiscounted Costs (MM$)	66.	66.	67.	67.	69.
Undiscounted Value (MM$)	333.	333.	373.	377.	378.

Total PNW at 4% for five periods = 609.7 (1978 dollars)
Long-Term Sustained Yield Capacity = 2.10 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-13 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE B (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	1090.0	1142.0	1208.0	1314.0	1386.0
Dispersed Recreation Use	Thousand RVDs	2169.0	2396.9	2578.1	2764.2	2861.3
Wilderness Use	Thousand RVDs	100.1	100.1	100.1	100.1	100.1
WILDERNESS						
New Wilderness Acres	Thousand Acres	0	0	0	0	0
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres	147.4	142.5	140.1	137.7	135.4
Primitive		1373.1	991.1	300.1	609.1	423.1
Semi-primitive non-motorized		1087.1	795.5	649.7	503.9	358.1
Semi-primitive motorized		536.3	1214.7	1553.9	1893.1	2232.3
Roaded natural		21.3	21.3	21.3	21.3	21.3
Rural						
VISUAL QUALITY						
Preservation	Thousand Acres	135.0	135.0	135.0	135.0	135.0
Retention		434.8	434.8	432.1	429.4	426.7
Partial Retention		1276.0	1276.0	1251.7	1227.4	1203.1
Modification		1103.6	1103.6	1127.9	1152.2	1176.5
Max Modification		222.3	222.3	225.0	227.7	230.4
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	3.3	3.3	3.3	3.3	3.3
Management Indicator Species	Thousand Animals					
Goshawk	Breeding pairs	66.0	55.0	55.0	55.0	55.0
Pine marten	Thousand Animals	1.0	.8	.9	.8	.8
Paiute cutthroat trout	Fish/Stream/Mile	230.0	260.0	320.0	430.0	500.0
Lahontan cutthroat trout	Fish/stream/mile	200.0	250.0	300.0	400.0	500.0
Williamson's sapsucker	Thousand Animals	3.4	2.4	2.2	2.2	2.2
Hairy woodpecker	Thousand Animals	5.0	3.8	2.2	3.0	2.5
Mule deer	Thousand Animals	29.0	31.6	32.6	32.6	32.6
Sage grouse	Thousand Animals	17.3	17.3	17.3	17.3	17.3
Yellow warbler	Thousand Animals	6.0	5.0	4.6	4.2	3.7
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinverbebiates (BCI)	Thousand Animals	75.0	50.0	50.0	50.0	50.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	579.0	739.9	867.3	867.3	867.3
Wilderness	Thousand of WFUDs	103.9	103.9	103.9	103.9	103.9
Improvement	Thousand of WFUDs	16.7	16.7	16.7	16.7	16.7

TABLE II-13 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE B (AVERAGE ANNUAL VALUE)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	99.0	103.2	104.0	104.0	104.0
Domestic Livestock (Permitted Use)	Thousand AUMs	100.0	100.0	100.7	100.7	100.7
Wild horses (Permitted Use)	Thousand AUMs	7.0	7.5	7.5	7.5	7.5
TIMBER						
Program Sales Offered 2/	Thousand CF	1851.0	1861.9	1861.9	1861.9	1861.9
	Millions BF	12.0	12.0	12.0	12.0	12.0
Reforestation Artificial	Thousand Acres	.271	.271	.145	.120	.135
Timber Stand Improvement	Thousand Acres	.082	.082	.082	.082	.082
Fuelwood	Thousand CF	641.0	641.0	641.0	641.0	641.0
	Thousand Cords	7.1	7.1	7.1	7.1	7.1
WATER						
Meeting Water Quality Standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.8	1.3	1.2	1.2	1.2
Prescribed burning for Range	Thousand Acres	.6	.6	.6	.6	.6
Prescribed burning for Wildlife	Thousand Acres	1.1	1.1	1.1	1.1	1.1
MINERALS						
Leases	Number of Leases	64.0	64.0	64.0	64.0	64.0
Operating Plans	Number of Plans	264.0	264.0	264.0	264.0	264.0
Acres Reclaimed	Thousand Acres	.9	.9	.9	.9	.9
Acres Distrubed	Thousand Acres	1.4	1.4	1.4	1.4	1.4
HC&D						
Human Resources Program	Person years	147.0	147.0	147.0	147.0	147.0
LANDS						
Land Purchase & Acquisition 3						
Exchange	Acres	800.0	800.0	800.0	800.0	800.0
Property Boundary Lines						
Location	Miles	21.0	20.6	20.9	20.8	20.4
Maintenance	Miles	0	6.9	7.0	6.9	6.8
Special Uses	Number of Permits					

TABLE II-13   ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE B (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	37.0	37.0	37.0	37.0	37.0
FACILITIES						
Trail Const./Reconst.	Miles	2.3	2.5	1.1	0	.66
Arterial/Collector Road Const.	Miles	5.5	3.8	2.2	1.7	1.5
Arterial/Collector Road Reconstr.	Miles	28.2	30.0	31.7	32.6	33.4
Timber Purch. Road Construction	Miles	8.7	6.1	3.5	2.7	2.3
Timber Purch. Road Reconstruction	Miles	1.8	3.9	5.8	6.7	7.6
BENEFITS M$	THOUSAND DOLLARS					
Recreation						
Developed		3276.0	3426.0	3624.0	3942.0	4158.0
Dispered		6506.0	7190.6	7734.2	8292.7	8585.4
Wilderness		801.0	801.0	801.0	801.0	801.1
Range		1256.0	1312.0	1321.0	1321.0	1321.0
Timber		672.0	628.7	624.1	590.8	531.6
Other Timber 1/		98.0	98.0	98.0	98.0	98.0
Wildlife (WFUDs)		9914.0	10925.0	11722.0	12539.0	12959.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		6579.0	6579.3	6620.4	6657.1	6801.6
Protection 940 & 940A		967.0	967.0	967.0	967.0	967.0
General Administration		696.0	686.0	686.0	686.0	696.0
Total Roads		1212.0	1093.2	1081.1	1078.4	1116.0
App. Fund Roads		1013.0	917.1	910.2	897.8	924.7
Purchaser Credit Roads		199.0	176.1	170.9	180.6	191.3
Recreation						
Developed Construction		246.3	162.9	142.8	134.8	135.1
Developed Reconstruction		138.5	0	14.4	0	3.8
Dispersed Trail Head		12.1	5.3	14.0	4.5	2.3
Dispersed Trail		18.7	19.8	9.0	0	5.3
Non-Forest Service Costs (exc. roads)		556.0	555.5	555.5	555.5	555.5
Returns To Treasury		1105.0	1666.3	1686.3	1715.4	1674.6

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood
2/ The timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE B TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of seventeen new campgrounds in the Sierra Front on the most economical sites and reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 66 miles of new dispersed recreation trails will enhance the dispersed recreation resource. Twenty-five additional trail heads will be constructed, sixty percent in the Sierra Front with the remaining forty percent occurring in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 5,855 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized, and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	135,394	4.390
Semi-primitive non-motorized	423,108	17.380
Semi-primitive motorized	358,100	17.370
Roaded natural	2,232,310	108.575
Rural	21,727	69.500

This alternative decreases the mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will decrease due to increased timber havesting and more activity in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE, AND (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 18.60 million cubic feet of timber in the first period and has an annual long term sustained yield capacity of 2.10 million cubic feet.

Timber will come mainly from Dog Valley, Walker, Alpine Co. and the Carson Front. Within the fifty year planning horizon, decade volume of timber harvested will remain constant at 18.60 million cubic feet per period.

Over the fifty year period, 93.2 million cubic feet of sawtimber in the Mixed Conifer, Jeffrey pine and the lodgepole working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed. Uneven-aged management would be used on a case by case basis for special management objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 119 years for the Mixed Conifer, 91 years for Jeffrey pine and 120 years for Lodgepole pine.

Within this alternative, 30,580 acres of regeneration over the fifty year period will be by natural methods, with the remaining 8,250 acres being by artificial means. The use of these systems is the most cost efficient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group and although unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 1,896 tons of pinyon nuts, 127,300 Christmas trees and 28,800 posts and poles in addition to the sawtimber output. In addition, 35 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 6,400 MCF from the first period thru the fifth period. The total for the planning horizon is 32,050 MCF. This represents an increase from the present outputs. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commericial timber lands will total 82,795 acres in this alternative.

Increased timber harvesting over the current situation of the Mixed Conifer, Lodgepole pine and Jeffrey pine working groups will result in a corresponding decrease of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extent practicable. Management programs would be designed to capitalize on opportunities to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements. This alternative will accomplish the back log of improvement acres by the year 2000.

A slight increased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease. This will result from range management aimed at bringing 10% more into satisfactory condition (57,465 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,978,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs increase from 1,000,000 AUMs in the first period to 1,007,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant at 75,000 AUMs per period for the fifty year period, for a total of 375,000 AUMs for the fifty year period. Range improvement and range management work on 28,000 acres will be accomplished by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur on 30 percent of the acres, while intensive would total 70 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk populations in central

Nevada are expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 95% of the range will be in satisfactory condition by 2030. Much of the improvement in range condition will be done thru range improvement projects.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will increase.

Because of the increase in range demands of domestic livestock, the riparian areas will come under increased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6, and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 2102.8 M acres of roadless areas not being designated as wilderness could result in an increase of road construction due to mineral exploration. In addition, the construction/reconstruction of 66 miles of dispersed recreation trails would enhance the existing trail system for the Forest visitors.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resources and public use and are described in the Forest Transportation plan. This alternative has 87.0 miles of local road construction and 18.0 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (local, arterial and collector) for the fifty year planning horizon would require 378.6 miles of new construction and 1815.3 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat.

This alternative will acquire important winter habitat along the Reno-Carson Front, lands in Hope Valley and on Mt. Charleston. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstron pass. Specific project location will be handled through the Environmental Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 13,200 operating plans over the 50 year planning period. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. This alternative will have 75% (9,900) of compliance checks done on both ongoing and future projects. This will result in compliance checks only on projects with high risk to public safety or areas with high resource values. This will result in all existing and future projects being inspected and brought into compliance if needed.

This alternative would have no acres of roadless areas designated as wilderness recommendation and no acres of high mineral potential land would be designated for wilderness recommendation. The level of the mineral program in this alternative will be high and designed to develop the mineral resources to their potential. There will be accelerated response to the 13,200 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The forest has 135.1 M acres of wilderness and this alternative will recommend no additional acres. This is (0) percent of the roadless areas identified thru public involvement. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative B provides a mixture of wildlife habitat. Increased timber harvesting over the current situation will favor some early successional wildlife species. Total wildlife user-days would total 9,530,000 for the fifty year planning horizon. Fishing opportunities would total 19,521,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 2015 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2005.

This alternative will have 165,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 50% percent in the Sierra and the remaining in central Nevada. This work will be accomplished by the use of prescribed fire on 53,625 acres with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 831,050 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 10% into satisfactory condition (57,465 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an Issue and is addressed in this alternative. The Sierra initative proposal is included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Zero (0) acres of roadless areas recommended as wilderness designation will provide for no new wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustment in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE C
(NON-MARKET)

This alternative will emphasize suitable habitat for game and non-game species, high quality wilderness values and wild free roaming horses and burros. The objective of this alternative is (1) to emphasis wildlife thru direct habitat improvement projects, (2) increase the wilderness acreage base tc include high quality areas while (3) increasing the funding for wild free roaming horses and burros management.

To prepare this alternative, five assumptions were necessary:

(1) Other resources would be managed to the extent that their management does not interfere with the primary purpose of the alternative.

(2) Demand for wildlife species will continue increasing.

(3) Regional and national guidelines for wildlife would be incorporated in this alternative.

(4) Increased funding would be available for wild horse management and direct wildlife habitat improvement projects.

(5) All Roadless Areas recommended for wilderness would go to wilderness.

Three management goals were needed to model this alternative:

(1) To provide diversified habitat for viable populations of plant and animal species.

(2) To maintain and increase populations of game species.

(3) Provide quality wildernesses that contain high values for primitive recreation, solitude, naturalness, science, education and history opportunities

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-14 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-15 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists managaement area prescription associated with Alternative C.

TABLE II-14 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE C (TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	3.1	3.1	3.1	3.1	3.1
Value (MM$)	1.1	1.2	1.3	1.2	1.0
Fisheries *					
Yield (M WFUDs)	3448.	3953.	4315.	4315.	4315.
Value (MM$)	61.	71.	77.	77.	77.
Wildlife *					
Yield (M WFUDs)	1799.	2284.	2600.	2600.	2600.
Value (MM$)	44.	56.	64.	64.	64.
Minerals					
Operating plans	2370.	2370.	2370.	2370.	2370.
Acres Reclaimed	8240.	8240.	8240.	8240.	8240.
Acres Disturbed	12730.	12730.	12730.	12730.	12730.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	4.2	4.2	4.2	4.2	4.2
Value (MM$)	.49	.49	.49	.49	.49
Range					
Livestock (M AUM)	938.	918.	917.	917.	917.
Value (MM$)		12.0	12.0	12.0	12.0
Wild horses (M AUM)	68.0	68.0	68.0	68.0	68.0
Dispered Rec.*					
Yield (M RVDs)	15531.	20667.	24033.	24033.	24033.
Value (MM$)	47.	62.	72.	72.	72.
Developed Rec.					
Yield (M RVDs)	9020.	7080.	4780.	4780.	4780.
Value (MM$)	27.	21.	14.	14.	14.
Wilderness*					
Yield (M RVDs)	9341.	10095.	10762.	10762.	10762.
Value (MM$)	75.	81.	86.	86.	86.
Undiscounted Costs (MM$)	49.	48.	49.	48.	48.
Undiscounted Value (MM$)	328.	328.	350.	350.	350.

Total PNW at 4% for five periods = 624.8 (1978 dollars)
Long-Term Sustained Yield Capacity = 1.41 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-15 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE C (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	902.0	708.0	473.0	478.0	478.0
Dispersed Recreation Use	Thousand RVDs	1553.0	2066.7	2403.3	2403.3	2403.3
Wilderness Use	Thousand RVDs	943.0	1009.5	1076.2	1076.2	1076.2
WILDERNESS						
New Wilderness acres	Thousand Acres	1113.6	1113.6	1113.6	1113.6	1113.6
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres					
Primitive		147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1373.1	1323.1	1298.1	1273.1	1263.1
Semi-primitive motorized		1087.1	1117.1	1132.1	1147.1	1152.1
Roaded natural		536.3	556.3	566.3	576.3	586.3
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	1332.3	1332.3	1332.3	1332.3	1332.3
Retention		238.3	238.3	236.0	233.7	231.4
Partial Retention		690.3	690.3	670.0	649.7	629.4
Modification		689.2	689.2	709.5	729.8	750.1
Max Modification		221.6	221.6	223.9	226.2	228.5
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	2.2	2.2	2.2	2.2	2.2
Management Indicator Species						
Goshawk	Breeding Pairs	66.0	66.0	66.0	67.0	70.0
Pine marten	Thousand Animals	1.0	1.1	1.2	1.3	1.4
Paiute cutthroat trout	Fish/Stream/Mile	230.0	400.0	500.0	550.0	600.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	350.0	475.0	525.0	600.0
Williamson's sapsucker	Thousand Animals	3.4	3.6	3.8	4.1	4.5
Hairy woodpecker	Thousand Animals	5.0	5.3	5.6	6.0	6.5
Mule deer	Thousand Animals	32.0	31.8	31.7	31.7	31.7
Sage grouse	Thousand Animals	17.3	20.0	22.0	25.0	30.0
Yellow warbler	Thousand Animals	6.0	6.4	6.7	7.0	7.3
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates (BCI)		75.0	90.0	100.0	100.0	100.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	350.0	439.3	397.0	502.7	502.7
Wilderness	Thousand of WFUDs	175.0	184.4	188.7	188.7	188.7
Improvement	Thousand of WFUDs	10.5	10.5	10.5	10.5	10.5

TABLE II-15 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE C (AVERAGE ANNUAL VALUE)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	98.0	96.1	96.0	96.0	96.0
Domestic Livestock (Permitted Use)	Thousand AUMs	94.0	91.8	91.7	91.7	91.7
Wild horses (Permitted Use)	Thousand AUMs	6.4	6.7	6.8	6.8	6.8
TIMBER						
Program Sales Offered 2/	Thousand CF	309.0	308.6	308.6	308.6	308.6
	Millions BF	2.0	2.0	2.0	2.0	2.0
Reforestation Artificial	Thousand Acres	.104	.104	.045	.050	.035
Timber Stand Improvement	Thousand Acres	.293	.293	.093	.093	.093
Fuelwood	Thousand CF	417.0	417.0	417.0	417.0	417.0
	Thousand Cords	4.6	4.6	4.6	4.6	4.6
WATER						
Meeting Water Quality Standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.2	1.1	1.1	1.1	1.1
Prescribed burning for Range	Thousand Acres	.4	.4	.4	.4	.4
Prescribed burning for Wildlife	Thousand Acres	.7	.7	.7	.7	.7
MINERALS						
Leases	Number of Leases	64.0	64.0	64.0	64.0	64.0
Operating Plans	Number of Plans	237.0	237.0	237.0	237.0	237.0
Acres Reclaimed	Thousand Acres	.82	.82	.82	.82	.82
Acres Distrubed	Thousand Acres	1.3	1.3	1.3	1.3	1.3
HC&D						
Human Resources Program	Person years	108.0	108.0	108.0	108.0	108.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	360.0	360.0	360.0	360.0	360.0
Property Boundary Lines						
Location	Miles	3.0	4.2	4.0	4.1	4.2
Maintenance	Miles	3.0	1.4	1.4	1.4	1.4
Special Uses	Number of Permits					

TABLE II-15 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE C (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	25.8	25.8	25.8	25.8	25.8
FACILITIES						
Trail Const./Reconst.	Miles	.4	.4	.4	0	0
Arterial/Collector Road Construction	Miles	0	0	.05	.4	.4
Arterial/Collector Road Reconst.	Miles	17.8	17.9	18.0	17.5	17.6
Timber Purch. Road Construction	Miles	0	0	.1	.7	.7
Timber Purch. Road Reconstruction	Miles	.7	1.5	1.6	1.1	1.1
BENEFITS M$	THOUSAND DOLLARS					
Recreation		2706.0	2124.0	1434.0	1434.0	1434.0
Developed		4659.0	6200.0	7210.0	7210.0	7210.0
Dispered		7472.0	8076.0	8610.0	8610.0	8610.0
Wilderness		1231.0	1204.0	1203.0	1203.0	1203.0
Range		3112.0	123.4	126.1	119.4	102.4
Timber		70.0	70.0	70.0	70.0	70.0
Other Timber 1/		10545.0	12656.0	13931.0	14074.0	14074.0
Wildlfie (WFUDs)						
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		4823.0	4832.0	4837.0	4819.8	4798.4
Protection		726.0	720.9	717.5	717.5	717.5
General Administration		782.0	782.0	782.0	782.0	782.0
Total Roads		437.0	450.2	457.8	477.6	454.9
App. Fund Roads		412.0	419.4	424.7	443.2	423.2
Purchaser Credit Roads		25.0	30.8	33.1	34.4	31.0
Recreation						
Deveolped Construction		0	0	0	0	0
Developed Reconstruction		0	0	0	0	0
Dispersed Trail Head		5.9	4.0	13.2	0	0
Dispersed Trails		2.7	5.1	6.0	0	0
Non-Forest Service Costs (exc. roads)		486.0	423.9	423.9	423.9	423.9
Returns To Treasury		1515.0	1468.7	1431.0	1424.3	1407.3

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood
2/ Timber output remains constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE C TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be no new construction or reconstruction of developed recreation sites. There will be 17.4 miles of dispersed recreation trail construction/reconstruction. Eleven additional trail heads will be constructed, ten percent in the Sierra Front, with the remaining ninety percent in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147.4	2.00
Semi-primitive non-motorized	1,263.1	20.00
Semi-primitive motorized	1,152.1	14.69
Roaded natural	586.3	72.00
Rural	21.3	54.30

This alternative offers an increased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will increase due to a slight decrease in timber harvesting and less activity in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 3.10 million cubic feet of timber in the first period and has an annual long-term sustained yield capacity of 1.41 million cubic feet. Timber will come mainly from Walker and the Carson Front. Within the fifty year planning horizon, decade volume of timber harvested will remain constant at 3.10 million cubic feet per period.

Over the fifty year period, 15.50 million cubic feet of sawtimber in the Mixed Conifer and Jeffrey pine working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed.

Uneven-aged management would be used on a case by case basis for special management objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 259 years for the Mixed Conifer, 169 years for Jeffrey pine and 281 years for the Lodgepole pine. The timber volume produced in this alternative is primarily from management activities directed at wildlife habitat improvement projects.

Within this alternative, 5,180 acres of regeneration over the fifty year period will be by natural methods, with the remaining 2,650 acres being by artificial means. The use of these systems is the most cost efficient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 1,866 tons of pinyon nuts, 47,600 Christmas trees and 20,050 posts and poles in addition to the sawtimber output. In addition, 30 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 4,170 MCF from the first period thru the fifth period. The total for the planning horizon is 20,850 MCF. This represents a decline from the present outputs. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commercial timber lands will total 65,663 acres in this alternative.

Decreased timber harvesting over the current situation of the Mixed Conifer and Jeffrey working groups will result in a corresponding increase of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands.

Management programs would be designed to capitalize on opportunities to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Decreased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,607,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs decrease from 954,420 AUMs in the first period to 917,080 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will increase from 63,740 AUMs in the first period to 68,000 in the fifth period, for a total of 335,270 AUMs over the fifty year period. Range improvement and range management work will be accomplished on 20,000 acres by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur on 50 percent of the acres, while intensive managment would total 50 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk populations in central Nevada are expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 90% of the range will be in satisfactory condition by 2030. Much of the improvement in range condition will come from eliminating livestock use on range in unsatisfactory condition.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will decrease slighty. Because of the decrease in range demands of domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6, and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 989.2 M acres of roadless areas not being designated as wilderness could result in an increase of road construction due to mineral exploration.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resources and public use and are described in the Forest Transportation plan.

This alternative has no new miles of local road construction and 7.0 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (local, arterial and collector) for the fifty year planning horizon would require 22.7 miles of new construction and 948.4 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. This alternative will set a piority in acquiring important winter habitat along the Reno-Carson Front, lands in Hope Valley and on Mt. Charleston. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstron pass. Specific project location will be handled through the Environment Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 10,750 operating plans over the 50 year planning period. Decreased funding in this alternative for the minerals program will result in decreased management and administration level in the Supervisor's office and at the district level. This alternative will have 66% (7,095) of compliance checks done on both the ongoing and future projects for the fifty year period based on complexity of projects or areas with high resource or public safety value.

This alternative would have 1113.6 M acres of roadless areas designated as wilderness recommendation. High mineral potential land, 356,288 acres, would be designated for wilderness recommendation.

The level of the mineral program in this alternative will be low to moderate and designed to develop the mineral resources to their potential. There will be low to moderate response to the 10,750 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The forest has 135.1 M acres of wilderness and this alternative will recommend an additional 153.0 M acres in California and 960.6 M acres in Nevada, for a total of 1113.6 M acres for both states. This is 56 percent of the roadless areas identified thru public involvement. Within this total recommendation, 1113.6 M acres are considered high quality wilderness (see Appendix C), while 356.3 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative C provides a mixture of wildlife habitats. Some timber harvesting will favor some early successional wildlife species, however, the early successional, mid-successional and old growth timber conditions would be designed for the optimum mix for wildlife. Wildlife user-days would total 11,883,000 for the fifty year planning horizon. Fishing opportunities would total 20,346,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 1900 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2000.

This alternative will have 111,960 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. This work will be accomplished by the use of prescribed fire on 47,920 acres with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 522,650 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

best copy available

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an Issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of this facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. The 1113.6 M acres of roadless areas recommended as wilderness designation will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Through the land adjustment in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

This alternative will acquire important winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Areas status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alternation of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE D
(1980 RPA)

This was designed to maximize present net value while achieving RPA targets.

Purpose

The objective of this alternative is to meet direction in the interpretation of the "revised President's Statement of Policy" which states that " at least one Alternative in the EIS will be developed to determine how the 1980 Forest and Rangeland Resources Planning Act (RPA) program could be best implemented on the Forest." 1/ All alternatives generally meet their share of local, regional and national demands for goods and services based on the projected outputs, activities and costs assigned to the Forest from RPA. This alternative, however, is develcped to closely align those targets.

Four assumptions were needed to model this alternative:

(1) The RPA targets and trends over time reflect the nation's resource management priorities.

(2) The geographic population has an important effect on the distribution of targets.

(3) Issues and concerns were considered in the distribution of targets.

(4) Biological potentials were considered in target distributions.

Five management goals were needed to model this alternative:

(1) Provide the Toiyabe share of the developed outdoor recreational opportunities and use.

(2) Emphasize energy efficiency in public sector recreation programs by making opportunitities more accessible, usable and enjoyable for urban residents and special populations.

(3) Facilitate safe, satisfying opportunities for visitors to know and experience nature.

(4) Provide quality wildernesses that contain high values for primitive recreation, solitude, naturalness, science, education and history.

(5) Provide the habitats, populations, species diversity and distributions of wildlife and fish that respond to known public interests and perferences.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-16 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-17 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists management area prescriptions associated with Alternative D.

TABLE II-16 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE D
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	13.9	13.9	13.9	13.9	13.9
Value (MM$)	5.0	5.1	5.0	4.7	4.5
Fisheries					
Yield (M WFUDs)	3584.	4188.	4479.	4752.	4894.
Value (MM$)	64.	75.	80.	85.	87.
Wildlife					
Yield (M WFUDs)	1889.	2129.	2279.	2415.	2486.
Value (MM$)	33.	52.	54.	59.	61.
Minerals					
Operating plans	2520.	2520.	2520.	2520.	2520.
Acres Reclaimed	7150.	7150.	7150.	7150.	7150.
Acres Disturbed	13410.	13410.	13410.	13410.	13410.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	5.8	5.8	5.8	5.8	5.8
Value (MM$)	.67	.67	.67	.67	.67
Range					
Livestock (M AUM)	959.	991.	1000.	1000.	1000.
Value (MM$)	12.6	13.0	13.1	13.1	13.1
Wild horses (M AUM)	54.	54.	54.	54.	54.
Dispered Rec.*					
Yield (M RVDs)	19617.	23969.	25781.	27642.	27824.
Value (MM$)	59.	72.	77.	83.	83.
Developed Rec.					
Yield (M RVDs)	10020.	10520.	11300.	12560.	13420.
Value (MM$)	30.	32.	34.	38.	40.
Wilderness*					
Yield (M RVDs)	5854.	6421.	6936.	6936.	6936.
Value (MM$)	47.	51.	55.	55.	55.
Undiscounted Costs (MM$)	61.	61.	61.	62.	62.
Undiscounted Value (MM$)	345.	345.	389.	393.	395.

Total PNW at 4% for five periods = 653.9 (1978 dollars)
Long-Term Sustained Yield Capacity = 1.83 MMCF/ year

* valued yields NOT supply
Public & Private

TABLE II-17 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE D (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	1002.0	1052.0	1130.0	1256.0	1342.0
Dispersed Recreation Use	Thousand RVDs	1962.0	2396.9	2578.1	2764.2	2782.4
Wilderness Use	Thousand RVDs	595.0	642.1	693.6	693.6	693.6
WILDERNESS						
New wilderness acres	Thousand Acres	592.7	592.7	592.7	592.7	597.7
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres					
Primitive		147.4	123.4	111.4	99.4	87.4
Semi-primitive non-motorized		1373.1	1253.1	1193.1	1133.1	1078.1
Semi-primitive motorized		1087.1	1207.1	1267.1	1327.1	1387.1
Roaded natural		536.3	548.3	572.3	584.3	596.3
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	657.8	657.8	657.8	657.8	657.8
Retention		347.3	347.3	344.2	341.1	338.0
Partial Retention		1010.3	1010.3	982.4	954.5	926.6
Modification		933.2	933.2	961.1	989.0	1016.9
Max Modification		223.1	223.1	226.2	229.3	232.4
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	2.9	2.9	2.9	2.9	2.9
Management Indicator Species	Thousand Animals					
Goshawk	Seeding Pairs	66.0	50.0	40.0	35.0	32.0
Pine marten	Thousand Animals	1.0	.5	.4	.4	.4
Paiute cutthroat trout	M Fish/Stream/Mile	230.0	350.0	500.0	500.0	500.0
Lahontan cutthroat trout	M Fish/Stream/Mile	200.0	260.0	370.0	400.0	430.0
Williamson's sapsucker	Thousand Animals	3.4	2.7	2.7	2.0	1.9
Hairy woodpecker	Thousand Animals	5.0	4.4	4.1	3.8	3.6
Mule deer	Thousand Animals	29.0	32.1	33.3	33.3	33.3
Sage grouse	Thousand Animals	17.3	17.3	17.3	17.3	17.3
Yellow warbler	Thousand Animals	6.0	5.0	4.6	4.2	4.1
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrate (BCI)		75.0	55.0	51.0	51.0	51.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	449.0	526.1	565.9	606.8	628.2
Wilderness	Thousand of WFUDs	98.0	105.5	109.9	109.9	109.9
Improvement	Thousand of WFUDs	10.2	10.2	10.2	10.2	10.2

TABLE II-17 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE D (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	100.	103.1	103.8	103.8	103.8
Domestic Livestock (Permitted Use)	Thousand AUMs	95.	99.1	100.0	100.0	100.0
Wild horses (Permitted Use)	Thousand AUMs	5.4	5.4	5.4	5.4	5.4
TIMBER						
Program Sales Offered 2/	Thousand CF	1389.0	1388.9	1388.9	1396.8	1396.8
	Millions BF	9.0	9.0	9.0	9.0	9.0
Reforestation Artificial	Thousand Acres	.244	.244	.115	.084	.085
Timber Stand Improvement	Thousand Acres	.226	.226	.092	.092	.092
Fuelwood	Thousand CF	575.0	575.0	575.0	575.0	575.0
	Thousand Cords	6.4	6.4	6.4	6.4	6.4
WATER						
Meeting Water Quality Standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.3	1.1	1.0	1.0	1.0
Prescribed burning for Ramge	Thousand Acres	.4	.4	.4	.4	.4
Prescribed burning for Wildlife	Thousand Acres	.9	.9	.9	.9	.9
MINERALS						
Leases	Number of Leases	64.0	64.0	64.0	64.0	64.0
Operating Plans	Number of Plans	252.0	252.0	252.0	252.0	252.0
Acres Reclaimed	Thousand Acres	.7	.7	.7	.7	.7
Acres Distrubed	Thousand Acres	1.3	1.3	1.3	1.3	1.3
HC&D						
Human Resources Program	Person years	147.0	147.0	147.0	147.0	147.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	1200.0	1200.0	1200.0	1200.0	1200.0
Property Boundary Lines						
Location	Miles	23.0	17.1	17.0	17.3	17.0
Maintenance	Miles	0	6.0	5.6	5.8	5.6

TABLE II-17 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE D (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	ACRES	24.9	24.9	24.9	24.9	24.9
FACILITIES						
Trail Const./Reconst.	Miles	1.5	.4	.6	0	0
Arterial/Collector Road Construction	Miles	3.7	2.7	1.9	2.0	1.5
Arterial/Collector Road Reconst.	Miles	28.2	29.5	30.3	30.1	30.1
Timber Purch. Road Construction	Miles	5.9	4.3	3.0	3.1	2.3
Timber Purch. Road Reconstruction	Miles	1.8	3.3	4.2	3.9	4.9
BENEFITS M$	THOUSAND DOLLARS					
Recreation						
Developed		3006.0	3156.0	3391.0	3769.0	4027.0
Dispered		5885.0	7190.6	7734.2	8295.0	8285.0
Wilderness		4683.0	5136.0	5549.0	5549.0	5549.0
Range		1252.0	1301.0	1312.0	1312.0	1312.0
Timber		504.0	505.0	502.8	472.3	445.8
Other Timber 1/		94.0	94.0	94.0	94.0	94.0
Wildlfie (WFUDs)		10070.0	12675.0	13560.0	14377.0	14807.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		6064.0	6063.5	6052.2	6124.5	6154.2
Protection		638.0	707.4	700.6	700.6	700.6
General Administration		686.0	686.0	686.0	686.0	686.0
Total Roads		1003.0	983.5	987.9	976.1	974.5
App. Fund Roads		858.0	845.5	854.9	843.3	834.4
Purchaser Credit Roads		145.0	138.0	133.0	132.8	140.1
Recreation						
Developed Construction		94.2	140.1	104.9	174.5	1.7
Developed Reconstruction		98.6	45.8	15.9	0	0
Dispersed Trail Head		3.8	10.0	11.0	0	0
Dispersed Trails		11.7	2.9	5.0	0	0
Non-Forest Service Costs (exc. roads)		600.0	555.5	555.5	555.5	555.5
Returns To Treasury		1363.0	1574.0	1586.7	1603.9	1628.2

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood
2/ Timber output remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE D TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of fourteen new campgrounds in the Sierra Front on the most economical sites and reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 24.6 miles of recreation trails will enhance the dispersed recreation resource. Thirteen additional trail heads will be constructed, thirty percent in the Sierra Front with the remaining seventy percent occurring in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 5,764 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	87,394	25.000
Semi-primitive non-motorized	1,078,108	20.000
Semi-primitive motorized	1,387,100	15.000
Roaded natural	596,310	108.127
Rural	21,272	70.000

This alternative offers a decreased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will decrease due to increased timber havesting and higher emphasis in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE AND (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 13.9 million cubic feet of timber in the first period and has an annual long-term sustained yield capacity of 1.83 million cubic feet. Timber will come mainly from Dog Valley, Alpine Co. and the Carson front.

Within the fifty year planning horizon, decade volume of timber harvested remains constant at 13.9 million cubic feet per period. Over the fifty year period, 69.5 million cubic feet of sawtimber in the Mixed Conifer and Jeffrey Pine working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed. Uneven-aged management would be used on a case by case basis for special management objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 147 years for Mixed Conifer, 95 years for Jeffrey pine and 150 years for Lodgepole pine. Some timber volume produced in this alternative is primarily from management activities directed at wildlife habitat improvement projects.

Within this alternative, 18,660 acres of regeneration over the fifty year period will be by natural methods, with the remaining 6,200 acres being by artificial means. The use of these systems is the most cost efficient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 2,237 tons of pinyon nuts, 211,900 Christmas trees and 25,750 posts and poles in addition to the sawtimber output. In addition, 35 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 5,750 MCF from the first period thru the fifth period. The total for the planning horizon is 28,750 MCF. This represents a decline from the present outputs. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commercial timber lands will total 79,229 acres in this alternative.

Increased timber harvesting over the current situation of the Mixed Conifer and Jeffrey Pine working groups will result in a corresponding decrease of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands.

Management programs would be designed to capitalize on opportunties to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

The same grazing use as current of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,950,000 thousand Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs increase from 959,000 AUMs in the first period to 1,000,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant from 54,000 AUMs in the first period to the fifth period, for a total of 270,000 AUMs for fifty years. Range improvement and range management work on 22,000 acres will be accomplished by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur on 45 percent of the acres, while intensive management would total 55 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk population in central Nevada is expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 90% of the range will be in satisfactory condition by 2030.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will decrease. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's in maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6 and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 1510.1 M acres of roadless area not being designated as wilderness could result in an increase of road construction due to mineral exploration.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resources and public use and are described in the Forest Transportation plan. This alternative has 59.0 miles of local road construction and 18.4 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (local, arterial and collector) for the fifty year planning horizon would require 231.4 miles of new construction and 1,672.5 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstrong pass. Specific project location will be handled through the Environmental Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 12,180 operating plans over the 50 year planning period. The same funding in this alternative, as is presently being done for the minerals program, will result in same the management and administration level in the Supervisor's office and at the district level.

This alternative will have 70% (8526) of compliance checks done on both the ongoing and future projects for the fifty year period based on complexity of projects or areas with high resource or public safety values.

This alternative would have 592.7 M acres of roadless areas designated as wilderness recommendation. Of these lands, 233.3 M acres of high mineral potential land would be designated for wilderness recommendation.

The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resources. There will be moderate response to the 12,180 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The Forest has 135.1 M acres of wilderness and this alternative will recommend an additional 58.9 M acres in California and 533.8 M acres in Nevada, for a total of 592.7 M acres for both states. This is 27 percent of the roadless area identified thru public involvement. Within this total recommendation, 592.7 M acres are considered high quality wilderness (see Appendix C), while 233.3 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative D provides a mixture of wildlife habitat. Increased timber harvesting over the current situation will favor some early successional wildlife species. Wildlife user-days would total 11,198,000 for the fifty year planning horizon. Fishing opportunities would total 21,897,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 1995 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2000.

This alternative will have 144,920 acres of direct wildlife habitat improvement projects for the fifty year period, with 60 percent in the Sierra and the remaining in central Nevada. This work will be accomplished by the use of prescribed fire on 47,099 acres with the remaining acres by other methods by manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 509,350 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources.

A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and no is longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an Issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be the greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 592.7 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

This alternative will acquire important winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE E
(25% CONSTRAINED BUDGET)

This alternative was designed to maintain the present level of protection (fire and minerals) and grazing capacity while managing the remaining resources at a reduced level. The objective of this alternative is (1) to provide fire and mineral protection consistent with the Fiscal year 82 funding level, (2) maintain range capacity thru present management practices while reducing total forest budget to 75% of Fiscal Year 82 funding.

This alternative will need three assumptions:

(1) Total funding for the Toiyabe National Forest would be 75% of FY 82.

(2) Concern by the public for along the Sierra Front for better fire protection will continue.

(3) Coordination and protection requirements between the mineral resource and other forest resources will increase.

This alternative will need one management goal:

(1) Maintain the present level of public safety.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-18 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-19 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative E.

TABLE II-18 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE E
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	0	0	0	0	0
Value (MM$)	0	0	0	0	0
Fisheries					
Yield (M WFUDs)	2961.	3175.	3366.	3366.	3366.
Value (MM$)	53.	57.	60.	60.	60.
Wildlife					
Yield (M WFUDs)	1390.	1611.	1773.	1773.	1773.
Value (MM$)	28.	34.	38.	38.	38.
Minerals					
Operating plans	2410.	2410.	2410.	2410.	2410.
Acres Reclaimed	4900.	4900.	4900.	4900.	4900.
Acres Disturbed	12510.	12510.	12510.	12510.	12510.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	5.4	5.4	5.4	5.4	5.4
Value (MM$)	.62	.62	.62	.62	.62
Range					
Livestock (M AUM)	947.	956.	950.	950.	950.
Value (MM$)	12.4	12.5	12.5	12.5	12.5
Wild horses (M AUM)	47.	46.	46.	46.	46.
Dispered Rec.*					
Yield (M RVDs)	15371.	17610.	19289.	19289.	19289.
Value (MM$)	46.	53	58.	58.	58.
Developed Rec.					
Yield (M RVDs)	8920.	6930.	4940.	5110.	5110.
Value (MM$)	27.	21.	15.	15.	15.
Wilderness*					
Yield (M RVDs)	6124.	6528.	6933.	6933.	6933
Value (MM$)	49.	52.	55.	55.	55
Undiscounted Costs (MM$)	32.	32.	32.	32.	32
Undiscounted Value (MM$)	257.	257.	267.	269.	269

Total PNW at 4% for five periods = 497.4 (1978 dollars)
Long-Term Sustained Yield Capacity = 0.0 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-19 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE E (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	892.0	593.0	494.0	511.0	511.0
Dispersed Recreation Use	Thousand RVDs	1423.0	1682.5	1863.8	1863.8	1863.8
Wilderness Use	Thousand RVDs	739.0	779.1	819.5	819.5	819.5
WILDERNESS						
New Wilderness acres	Thousand Acres	306.1	306.1	306.1	306.1	306.1
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres					
Primitive		147.4	142.6	140.3	137.8	135.0
Semi-primitive non-motorized		1373.1	1070.0	918.9	767.5	621.0
Semi-primitive motorized		1037.1	839.5	715.7	591.9	468.1
Roaded natural		536.3	1091.5	1369.1	1646.7	1924.8
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	438.7	438.7	438.7	438.7	438.7
Retention		401.9	401.9	398.2	394.5	390.8
Partial Retention		1068.3	1068.3	1035.0	1001.7	968.4
Modification		1038.7	1038.7	1072.0	1105.3	1138.6
Max Modification		224.1	224.1	227.8	231.5	235.2
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	2.7	2.7	2.7	2.7	2.7
Management Indicator Species	Thousand Animals					
Goshawk	Breeding Pairs	66.0	59.0	59.0	59.0	59.0
Pine marten	Thousand Animals	10.0	.9	.9	.8	.8
Paiute cutthroat trout	Fish/Stream/Mile	230.0	250.0	280.0	300.0	350.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	220.0	250.0	280.0	310.0
Williamson's sapsucker	Thousand Animals	3.4	3.2	3.1	3.1	3.0
Hairy woodpecker	Thousand Animals	5.0	4.7	4.5	4.5	4.4
Mule deer	Thousand Animals	28.0	28.1	28.1	28.1	28.1
Sage grouse	Thousand Animals	17.3	17.3	17.3	17.3	17.3
Yellow warbler	Thousand Animals	6.0	5.0	4.8	4.8	4.7
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates (BCI)		75.0	55.0	55.0	55.0	55.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	321.0	369.7	408.5	408.5	408.5
Wilderness	Thousand of WFUDs	122.0	121.8	121.8	121.8	121.8
Improvement	Thousand of WFUDs	4.1	4.1	4.1	4.1	4.1

TABLE II-19 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE E (AVERAGE ANNUAL VALUE)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	99.0	99.6	99.0	99.0	99.0
Domestic Livestock (Permitted Use)	Thousand AUMs	95.0	95.4	95.0	95.0	95.0
Wild horses (Permitted Use)	Thousand AUMs	4.7	4.6	4.6	4.6	4.6
TIMBER						
Program Sales Offered 2/	Thousand CF	0	0	0	0	0
	Millions BF	0	0	0	0	0
Reforestation Artificial	Thousand Acres	.070 2/	.020 2/	.020 2/	.020 2/	.020 2/
Timber Stand Improvement	Thousand Acres	.303 2/	.103 2/	.103 2/	.103 2/	.103 2/
Fuelwood	Thousand CF	540.0	540.0	540.0	540.0	540.0
	Thousand Cords	6.0	6.0	6.0	6.0	6.0
WATER						
Meeting Water Quality standard	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.2	.9	.8	.8	.8
Prescribed burning for site prep	Thousand Acres	0	0	0	0	0
Prescribed burning for Wildlife	Thousand Acres	.9	.9	.9	.9	.9
MINERALS						
Leases	Number of Leases	59.0	59.0	59.0	59.0	59.0
Operating Plans	Number of Plans	238.0	238.0	238.0	238.0	238.0
Acres Reclaimed	Thousand Acres	.5	.5	.5	.5	.5
Acres Distrubed	Thousand Acres	1.2	1.2	1.2	1.2	1.2
HC&D						
Human Resources Program	Person years	71.0	71.0	71.0	71.0	71.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	260.0	260.0	260.0	260.0	260.0
Property Boundary Lines						
Location	Miles	0	0	0	0	0
Maintenance	Miles	0	0	0	0	0
Special Uses	Number of Permits					

2/ Due to non-regulated products

TABLE II-19 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE E (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	ACRES	10.5	10.5	10.5	10.5	10.5
FACILITIES						
Trail Const./Reconst.	Miles	0	0	0	0	0
Arterial/Collector Road Construction	Miles	0	0	0	0	0
Arterial/Collector Road Reconst.	Miles	0	0	0	0	0
Timber Purch. Road Construction	Miles	0	0	0	0	0
Timber Purch. Road Reconstruction	Miles	0	0	0	0	0
BENEFITS M$	THOUSAND DOLLARS					
Recreation						
Developed		2676.0	2080.0	1483.0	1533.0	1533.0
Dispered		4271.0	5048.0	5592.0	5592.0	5592.0
Wilderness		5909.0	6233.0	6556.0	6556.0	6556.0
Range		12450.0	1252.0	1246.0	1246.0	1246.0
Timber		0	0	0	0	0
Other Timber 1/		85.0	85.0	85.0	85.0	85.0
Wildlife (WFUDs)		8794.0	9849.0	10665.0	10665.0	10665.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		3178.0	3177.8	3166.2	3177.8	3155.3
Protection		747.0	742.1	738.9	738.9	738.9
General Administration		461.0	461.0	461.0	461.0	461.0
Total Roads		68.0	68.0	68.0	68.0	68.0
App. Fund Roads		68.0	68.0	68.0	68.0	68.0
Purchaser Credit Roads		0	0	0	0	0
Recreation						
Developed Construction		0	0	18.1	22.2	0
Developed Reconstruction		0	0	0	0	0
Dispersed Trail Head		0	0	0	0	0
Dispersed Trails		0	0	0	0	0
Non-Forest Service Costs (exc. roads)		308.0	245.5	245.8	245.8	245.8
Returns To Treasury		1060.0	1120.2	1063.9	1068.2	1062.0

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood
2/ Timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE E TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of four new campgrounds in the Sierra Front on the most economical sites and some reconstruction of existing sites within this alternative. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 1,271 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,400	3.700
Semi-primitive non-motorized	1,478,100	12.600
Semi-primitive motorized	987,100	14.700
Roaded natural	536,100	93.387
Rural	21,272	58.600

This alternative offers an increased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will increase due to the minimal amount of timber harvesting occuring in the fifth period and less activity in mineral exploration and leasing than presently planned. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides for no commercial timber harvesting. The average age of the existing stands at the end of 200 years would be 257 years for Mixed Conifer, 268 years for Jeffrey pine and 257 years for Lodgepole pine.

There will be management of the Pinyon-Juniper working group, and alothough unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 2,032 tons of pinyon nuts, 83,750 Christmas trees and 29,350 posts and poles. In addition, 39 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 5,400 MCF from the first period thru the fifth period. The total for the planning horizon is 27,000 MCF. This represents a decline from the present outputs. Fuelwood will be managed as the primary timber product coming mainly from salvage sales, the Pinyon-Juniper working group and special fuelwood sale areas.

There are no suitable timber lands in this alernative. No timber harvesting of the Mixed Conifer working groups will result in an increase of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extend practicable. Management programs would be designed to capitalize on opportunities to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Decreased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease.

This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,753,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs increases from 947,000 AUMs in the first period to 950,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will decrease from 47,000 AUMs in the first period to 46,000 in the fifth period, for a total of 231,000 AUMs over the fifty year period. Range improvement and range management work on 18,000 acres will be accomplished by prescribed fire with the remaining work by other methods of manipulating vegetation for the fifty year period. Extensive managment would occur on 55 percent of the acres, while intensive management would total 45 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk population in central Nevada is expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 90% of the range will be in satisfactory condition by 2030.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will decrease.

Because of the decreased grazing by domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

There is no new road construction or reconstruction in any management areas for timber purposes. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 1796.7 M acres of roadless area not being designated as wilderness could result in an increase of road construction due to mineral exploration.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

There is no new road construction or reconstruction. The majority of the road work would be done in support of mining activities.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line and at Luther pass. Specific project location will be handled through the Environmental Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 11,340 operating plans over the 50 year planning period. A slight reduction in funding in this alternative for the minerals program will result in a slight reduction in management and administration level in the Supervisor's office and at the district level. This alternative will have 65% (7,371 plans) compliance checks done on both the ongoing and future projects for the fifty year period based on complexity of projects or areas with high resource or public safety value.

This alternative would have 306.1 M acres of roadless areas designated as wilderness recommendation. Of these acres, 149.1 M acres of high mineral potential land would be designated for wilderness recommendation. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting surface resource values. There will be moderate response to the 11,340 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The forest has 135.1 M acres of wilderness and this alternative will recommend an additional 49.2 M acres in California and 256.9 M acres in Nevada, for a total of 306.1 M acres for both states. This is 15 percent of the roadless area identified thru public involvement. Within this total recommendation, 297.4 M acres are considered high quality wilderness (see Appendix C), while 149.1 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative E provides a mixture of wildlife habitat. Total wildlife user-days would total 8,320,000 for the fifty year planning horizon. Fishing opportunities would total 16,234,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 2030 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2015.

This alternative will have 135,430 acres of direct wildlife habitat improvement projects for the fifty year period, with sixty five percent in the Sierra and the remaining in central Nevada. This work will be accomplished by the use of prescribed fire on 44,014 acres with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 261,850 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase of direct wildlife areas over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an Issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 306.1 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE P
(MARKET/NONMARKET-MIX)
(PERFERRED)

This alternative is designed to emphasize developed and dispersed recreation, high quality wilderness, minerals, wildlife management and protection while maintaining livestock and wild horses at close to current levels. The objectives of this alternative are (1) to emphasize developed recreation throughthe reconstruction of current sites and the construction of new sites, (2) to emphasize dispersed recreation through the construction of new trails, (3) to emphasize mineral development coordination with other resource programs thru more intensive administration, (4) to emphasize wildlife thru fisheries and elk habitat improvements and (5) to emphasize protection by implementing the most cost effective level of fire analysis and the Sierra initative.

To prepare this alternative, the following eight assumptions were necessary :

(1) Suitable sites for the construction of developed recreation sites and new dispersed recreation trails are present on the Toiyabe National Forest.

(2) Demand for game and fisheries species will continue to increase.

(3) Adequate funding will be available.

(4) Regional and National guidelines for wildlife management will be blended in this alternative.

(5) Concern by the public along the Sierra Front for better fire protection will continue to increase.

(6) Demand for developed recreation will continue to exceed the current supply along the Sierra Front and at Mount Charleston.

(7) Coordination requirements between the mineral resource and other forest resources will increase.

(8) Opportunities to increase grazing capacity above current levels would require expensive range improvement projects.

Three management goals were needed to model this alternative:

(1) Projected demand for developed recreation will be met by the forest.

(2) Visual quality will be at an acceptable level in sensitive areas.

(3) Increase fuelwood availability and produce sawtimber at the most cost efficient level.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-20 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-21 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative P.

Under this alternative, the following areas are recommended for wilderness classification:

California

Hoover Planning Area - 49,200 acres to be added to the existing Hoover Wilderness.

Carson-Iceberg Planning Area - 4,900 acres to be added to the Carson-Iceberg Wilderness.

Nevada

Arc Dome - 94,000 acres
Mt. Charleston - 32,000 acres
Mt. Jefferson - 31,000 acres

The passage of the 1984 California Wilderness Act designated a portion of the Carson-Iceberg and Hoover Planning Area as Congressional Study Areas. The Congress continued the Further Planning status of the Sweetwater Mountains and the Hoover Further Planning Area (east side). The Preferred Alternative recommends the following:

AREA	WILDERNESS	NONWILDERNESS
Carson Iceberg Planning Area 1/	4,900 acres	4,800 acres
Hoover Planning Area	49,200 acres	
Hoover Further Planning Area (East)		54,132 acres
Sweetwater		68,112 acres

This recommendation is a preliminary administrative recommendation which will receive further review and possible modification by the Chief of the Forest Service, the Secretary of Agriculture and the President of the United States. Final decisions on wilderness designation have been reserved by the Congress.

Areas recommended for wilderness will be submitted to Congress for consideration as required by the California Wilderness Act of 1984.

Evaluation of each of these planning areas is found in Appendix C of the Environmental Statement.

1/ This area adjoins additional area on the Stanislaus National Forest which has lead responsibility for evaluating the entire area and presenting the results in their Environmental Impact Statement (EIS). These are recommendations to the lead forest for use in their EIS process.

TABLE II-20 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE P
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	6.9	6.9	6.9	6.9	6.9
Value (MM$)	2.6	2.6	2.6	2.6	2.4
Fisheries*					
Yield (M WFUDs)	3434.	4045.	4310.	4582.	4725.
Value (MM$)	62.	72.	77.	82.	84.
Wildlife*					
Yield (M WFUDs)	1787.	1986.	2118.	2255.	2326.
Value (MM$)	44.	49.	52.	55.	57.
Minerals					
Operating plans	2560.	2560.	2560.	2560.	2560.
Acres Reclaimed	9140.	9140.	9140.	9140.	9140.
Acres Disturbed	13800.	13800.	13800.	13800.	13800.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	5.9	5.9	5.9	5.9	5.9
Value (MM$)	.68	.68	.68	.68	.68
Range					
Livestock (M AUM)	980.	981.	990.	990.	990.
Value (MM$)	13.1	13.1	13.1	13.1	13.1
Wild horses (M AUM)	51.	51.	51.	51.	51.
Dispered Rec.*					
Yield (M RVDs)	18076.	20938.	24177.	24177.	24177.
Value (MM$)	54.	62.	73.	73.	73.
Developed Rec.					
Yield (M RVDs)	10960.	11250.	11710.	12460.	13150.
Value (MM$)	32.	34.	35.	37.	39.
Wilderness*					
Yield (M RVDs)	6298.	6746.	7185.	7185.	7185.
Value (MM$)	50.	54.	57.	57.	57.
Undiscounted Costs (MM$)	60.	60.	61.	60.	61.
Undiscounted Value (MM$)	322.	322.	353.	357.	359.

Total PNW at 4% for five periods = 595.5 (1978 dollars)
Long-Term Sustained Yield Capacity = 1.54 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-21 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE P (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	1096.0	1125.0	1171.0	1246.0	1315.0
Dispersed Recreation Use	Thousand RVDs	1807.0	2094.0	2417.8	2417.8	2417.8
Wilderness Use	Thousand RVDs	630.0	674.6	718.5	718.5	718.5
WILDERNESS						
New Wilderness acres	Thousand Acres	211.5	211.5	211.5	211.5	211.5
RECREATIONAL OPPORTUNITY SPECTRUM						
Primitive	Thousand Acres	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1409.1	1409.1	1409.1	1409.1	1409.1
Semi-primitive motorized		1056.1	1056.1	1056.1	1056.1	1055.1
Roaded natural		536.3	536.3	536.3	536.3	536.3
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	355.9	355.9	355.9	355.9	355.9
Retention		460.3	460.3	458.1	455.9	453.7
Partial Retention		1106.8	1106.8	1087.0	1067.0	1047.4
Modification		1027.3	1027.3	1047.1	1066.9	1086.7
Max Modification		221.4	221.4	223.6	225.8	228.0
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	3.0	3.0	3.0	3.0	3.0
Management Indicator Species	Thousand Animals					
Goshawk	Breeding Pairs	66.0	66.0	66.0	66.0	66.0
Pine marten	Thousand Animals	1.0	95.0	95.0	95.0	95.0
Paiute cutthroat trout	Fish/Stream/Mile	230.0	380.0	500.0	500.0	500.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	380.0	500.0	500.0	500.0
Williamson's sapsucker	Thousand Animals	3.4	3.4	3.4	3.4	3.5
Hairy woodpecker	Thousand Animals	5.0	5.0	5.0	5.0	5.0
Mule deer	Thousand Animals	29.0	32.5	33.6	33.6	33.6
Sage grouse	Thousand Animals	17.3	20.0	23.0	25.0	27.0
Yellow warbler	Thousand Animals	6.0	5.6	5.6	5.6	5.6
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates (BCI)		75. 0	77.0	78.0	78.0	78.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	442.0	526.1	565.9	606.8	628.2
Wilderness	Thousand of WFUDs	77.0	76.9	76.9	76.9	76.9
Improvement	Thousand of WFUDs	15.0	15.0	15.0	15.0	15.0

TABLE II-21 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE P (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	99.2	102.7	103.4	103.4	103.4
Domestic Livestock (Permitted Use)	Thousand AUMs	98.0	98.1	99.0	99.0	99.0
Wild horses (Permitted Use)	Thousand AUMs	5.1	5.1	5.1	5.1	5.1
TIMBER						
Program Sales Offered 2/	Thousand CF	693.0	693.0	693.0	693.0	693.0
	Millions BF	4.5	4.5	4.5	4.5	4.5
Reforestation Artificial	Thousand Acres	.120	.120	.075	.061	.052
Timber Stand Improvement	Thousand Acres	.270	.270	.089	.089	.089
Fuelwood	Thousand CF	587.0	587.0	587.0	587.0	587.0
	Thousand Cords	6.5	6.5	6.5	6.5	6.5
WATER						
Meeting Water Quality standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.5	1.2	1.2	1.2	1.2
Prescribed burning for Range	Thousand Acres	.5	.5	.5	.5	.5
Prescribed burning for Wildlife	Thousand Acres	1.1	1.1	1.1	1.1	1.1
MINERALS						
Leases	Number of Leases	65.0	65.0	65.0	65.0	65.0
Operating Plans	Number of Plans	256.0	256.0	256.0	256.0	256.0
Acres Reclaimed	Thousand Acres	.9	.9	.9	.9	.9
Acres Disturbed	Thousand Acres	1.3	1.3	1.3	1.3	1.3
HC&D						
Human Resources Program	Person years	108.0	108.0	108.0	108.0	108.0
LANDS						
Land Purchase & Acquisition $						
Exchange	Acres	700.0	700.0	700.0	700.0	700.0
Property Boundary Lines						
Location	Miles	11.0	8.0	8.0	8.0	8.0
Maintenance	Miles	0	2.6	2.6	2.7	2.6
Special Uses	Number of Permits					

TABLE II-21 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE P (AVERAGE ANNUAL VALUE)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	33.5	33.5	33.5	33.5	33.5
FACILITIES						
Trail Const./Reconst.	Miles	1.8	1.7	.6	0	0
Arterial/Collector Road Construction	Miles	4.1	.6	.7	.9	.7
Arterial/Collector Road Reconst.	Miles	26.9	13.8	18.8	18.5	18.9
Timber Purch. Road Construction	Miles	1.3	1.2	1.1	1.4	1.0
Timber Purch. Road Reconstruction	Miles	2.6	1.9	2.9	2.5	3.0
BENEFITS M$	**THOUSAND DOLLARS**					
Recreation						
Developed		3298.0	3374.0	3512.0	3738.0	3945.0
Dispered		5423.0	6281.0	7253.0	7253.0	7253.0
Wilderness		5039.0	5398.0	5748.0	5748.0	5748.0
Range		1283.0	1287.0	1299.0	1299.0	1299.0
Timber		257.0	257.8	255.9	256.3	242.2
Other Timber 1/		89.0	89.0	89.0	89.0	89.0
Wildlife (WFUDs)		10557.0	12068.0	12865.0	13682.0	14112.0
COSTS M$	**THOUSAND DOLLARS**					
Total Forest Budget		6005.0	6004.8	6098.7	6030.0	6117.6
Protection		967.0	967.0	967.0	967.0	967.0
General Administration		782.0	782.0	782.0	782.0	782.0
Total Roads		562.0	560.5	569.2	572.6	561.7
App. Fund Roads		496.0	492.6	502.5	505.3	494.8
Purchaser Credit Roads		66.0	67.9	66.7	67.3	66.9
Non-Forest Service Costs (exc. roads)		462.0	423.9	423.9	423.9	423.9
Recreation						
Developed Construction		246.3	138.2	124.7	103.3	133.6
Developed Reconstruction		138.5	24.7	13.7	0	0
Dispersed Trail Head		6.1	9.6	16.5	0	0
Dispersed Trails		14.2	13.6	4.9	0	0
Returns To Treasury		1245.0	1402.8	1400.7	1423.5	1442.9

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood
2/ Timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE P TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of twelve new campgrounds in the Sierra Front on the most economical sites and reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 40.9 miles of trails will enhance the dispersed recreation resource. Sixteen additional trail heads will be constructed, forty percent in the Sierra Front with the remaining sixty percent occurring in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 5,150 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,394	4.700
Semi-primitive non-motorized	1,404,100	18.935
Semi-primitive motorized	1,056,100	18.915
Roaded natural	536,310	118.000
Rural	21,272	75.538

This alternative offers an increased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will increase due to decreased timber harvesting and the same level of activity as presently exists in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 6.9 million cubic feet of timber in the first period and has an annual long-term sustained yield capacity of 1.54 million cubic feet.

Timber will come mainly from Dog Valley, Walker, Alpine Co. and the Carson front. Within the fifty year planning horizon, decade volume of timber harvested will remain constant at 6.9 million cubic feet per period.

Over the fifty year period, 34.7 million cubic feet of sawtimber in the Mixed Conifer and Jeffrey Pine working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed. Uneven-aged management would be used on a case by case basis for special managment objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 153 years for Mixed Conifer, 152 years for Jeffrey pine and 279 years for Lodgepole pine. The timber volume produced in this alternative is primarily from management activities directed at wildlife habitat improvement projects.

Within this alternative, 9,480 acres of regeneration over the fifty year period will be by natural methods, with the remaining 3,590 acres being by artifical means. The use of these systems is the most cost efficient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timbe products in central Nevada with outputs over the fifty year period of 1,624 tons of pinyon nuts, 56,600 Christmas trees and 25,450 posts and poles in addition to the sawtimber output. In addition, 36 percent of the fuelwood output would come from this working group.

On the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 5,870 MCF from the first period thru the fifth period. The total for the planning horizon is 29,350. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commercial timber lands would total 70,583 acres in this alternative.

Decreased timber harvesting over the current situation of the Mixed Conifer and Jeffrey Pine working groups will result in a corresponding increase of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extent practicable. Management programs would be designed to capitalize on opportunities to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

A slight decreased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease. This will result from range management aimed at bringing 10% more into satisfactory condition (57,465 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current sistuation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,931,000 Animal Unit Months (AUMs) of livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs increase from 980,000 AUMs in the first period to 990,000 AUMs in the fifth period. Wild free-roaming horse and burro AUM's will remain constant at 51,000 AUM's per period for the fifty year period, for a total of 255,000 AUM's for fifty years. Range improvement and range management work on 24,000 acres will be accomplished by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur 40 percent of the acres, while intensive management would total 60 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk population in central Nevada is expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 95% of the range will be in satisfactory condition by 2030.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will decrease slightly.

Because of the slight decrease in range demands of domestic livestock, the riparian areas will come under slightly decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6, and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 1,891.3 M acres of roadless area not being designated as wilderness could result in an increase of road construction due to mineral exploration. In addition, the construction/reconstruction of 40.9 miles of dispersed recreation trails will enhance the existing trail system for the Forest visitors.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

This alternative has 13.0 miles of local road construction and 26.0 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (local, arterial and collector) for the fifty year planning horizon would require 96.4 miles of new construction and 1076.6 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative.

Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. This alternative will set a priority of acquiring important winter habitat along the Reno-Carson Front, lands in Hope Valley and on Mt. Charleston. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstron pass. Specific project location will be handled through the Environment Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 12,069 operating plans over the 50 year planning period. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. This alternative will have 80% (9,655 plans) compliance checks done on both the on going and future projects for the fifty year period based on complexity of projects or areas with high resource or public safety values.

This alternative would have 211.5 M acres of roadless areas designated as wilderness recommendation. High mineral potential land, 40,447 acres, would be designated for wilderness recommendation. The level of the mineral program in this alternative will be moderate to high and designed to develop the mineral resources while protecting the surface resources. There will be accelerated response to the 12,069 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The Forest has 135.1 M acres of wilderness and this alternative will recommend an additional 54.1 M acres in California and 157.4 M acres in Nevada, for a total of 211.5 M acres for both states. This is 9 percent of the roadless area identified thru public involvement. Within this total recommendation, 211.5 M acres are considered high quality wilderness (see Appendix C), while 40.5 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative P provides a mixture of wildlife habitat. Decreased timber harvesting over the current situation will favor some late successional wildlife species. Total wildlife user-days would total 10,472,000 for the fifty year planning horizon. Fishing opportunities would total 21,096,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable population of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 1995 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2000.

This alternative will have 150,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 65 percent in the Sierra and the remaining in central Nevada. Work on 55,383 acres will be accomplished by the use of prescribed fire with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 750,450 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional

10% into satisfactory condition (57,465 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources.

A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an issue and is addressed in this alternative. The Sierra initiative proposal is included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 211.5 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

This alternative will acquire important winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE F
(100% WILDERNESS)

This alternative was designed to emphasize primitive recreation and wilderness values. The objective of this alternative is, (1) to recommend all Roadless Areas (100%) for wilderness and (2) all other resources will be managed at an economical level.

To prepare this alternative, the following three assumptions were necessary :

(1) All Roadless Areas would be recommended for wilderness.

(2) All existing developed recreation sites would be retained.

(3) Other resources would be actively managed to the extent that their management does not interfere with the primary purpose of the alternative.

One management goal was required to model this alternative:

(1) Increase the amount of wilderness acres.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-22 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-23 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative F.

TABLE II-22 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE F
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	0	0	0	0	0
Value (MM$)	0	0	0	0	0
Fisheries*					
Yield (M WFUDs)	3198.	3843.	4210.	4210.	4210.
Value (MM$)	57.	69.	75.	75.	75.
Wildlife*					
Yield (M WFUDs)	1752.	2201.	2493.	2493.	2493.
Value (MM$)	43.	54.	61.	61.	61.
Minerals					
Operating plans	2130.	2130.	2130.	2130.	2130.
Acres Reclaimed	5850.	5850.	5850.	5850.	5850.
Acres Disturbed	11220.	11220.	11220.	11220.	11220.
Water					
Yield (M Ac-Ft)	9490.	9310.	9050.	8930.	8890.
Fuelwood					
Yield (MMCF)	3.6	3.6	3.6	3.6	3.6
Value (MM$)	.43	.43	.43	.43	.43
Range					
Livestock (M AUM)	923.	923.	923.	923.	923.
Value (MM$)	12.1	12.1	12.1	12.1	12.1
Wild horses (M AUM)	53.	55.	56.	56.	56.
Dispered Rec.*					
Yield (M RVDs)	13865.	18531.	21528.	21528.	21528.
Value (MM$)	42.	56.	65.	65.	65.
Developed Rec.					
Yield (M RVDs)	9090.	7190.	4920.	5130.	5130.
Value (MM$)	27.	22.	15.	15.	15.
Wilderness*					
Yield (M RVDs)	10593.	11546.	12368.	12368.	12368.
Value (MM$)	85.	105.	112.	112.	112.
Undiscounted Costs (MM$)	36.	36.	36.	36.	36.
Undiscounted Value (MM$)	327.	326.	349.	350.	350.

Total PNW at 4% for five periods = 651.0 (1978 dollars)
Long-Term Sustained Yield Capacity = 0.0 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-23 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE F (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	909.0	719.0	492.0	513.0	513.0
Dispersed Recreation Use	Thousand RVDs	1387.0	1853.1	2152.8	2152.8	2152.8
Wilderness Use	Thousand RVDs	1059.0	1154.6	1236.8	1236.8	1236.8
WILDERNESS						
New Wilderness acres	Thousand Acres	1992.2	1992.2	1992.2	1992.2	1992.2
RECREATIONAL OPPORTUNITY SPECTRUM						
Primitive	Thousand Acres	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1378.1	1413.1	1433.1	1453.1	1478.1
Semi-primitive motorized		1087.1	1047.1	1027.1	1007.1	987.1
Roaded natural		536.3	536.3	536.3	536.3	536.3
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	2121.4	2121.4	2121.4	2121.4	2121.4
Retention		106.9	106.9	104.2	101.5	98.8
Partial Retention		292.2	292.2	267.9	243.6	219.3
Modification		428.9	428.9	453.2	477.5	501.8
Max Modification		222.3	222.3	225.0	227.7	230.4
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	1.3	1.3	1.3	1.3	1.3
Management Indicator Species	Thousand Animals					
Goshawk	Breeding Pairs	66.0	75.0	80.0	85.0	85.0
Pine marten	Thousand Animals	1.0	1.1	1.2	1.4	1.7
Paiute cutthroat trout	Fish/Stream/Mile	230.0	250.0	400.0	450.0	500.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	240.0	360.0	430.0	480.0
Williamson's sapsucker	Thousand Animals	3.4	3.6	3.8	4.2	5.0
Hairy woodpecker	Thousand Animals	5.0	5.5	5.8	6.0	6.5
Mule deer	Thousand Animals	29.0	30.3	30.3	30.3	30.3
Sage grouse	Thousand Animals	17.3	17.3	17.3	17.3	17.3
Yellow warbler	Thousand Animals	6.0	6.0	6.0	6.0	6.0
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates(BCI)		75.0	85.0	90.0	90.0	90.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	262.0	349.4	404.0	404.0	404.0
Wilderness	Thousand of WFUDs	232.0	255.1	266.2	266.2	266.2
Improvement	Thousand of WFUDs	5.0	5.1	5.1	5.1	5.1

TABLE II-23 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE F (AVERAGE ANNUAL VALUE)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	98.0	96.6	96.6	96.6	96.6
Domestic Livestock (Permitted Use)	Thousand AUMs	94.0	92.3	92.3	92.3	92.3
Wild horses (Permitted Use)	Thousand AUMs	5.3	5.5	5.6	5.6	5.6
TIMBER						
Program Sales Offered 2/	Thousand CF	0	0	0	0	0
	Millions BF	0	0	0	0	0
Reforestation Artificial	Thousand Acres	.067 2/	.017 2/	.017 2/	.017 2/	.017 2/
Timber Stand Improvement	Thousand Acres	.293 2/	.093 2/	.093 2/	.093 2/	.093 2/
Fuelwood	Thousand CF	357.0	357.0	357.0	357.0	357.0
	Thousand Cords	4.0	4.0	4.0	4.0	4.0
WATER						
Meeting Water Quality standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.8	1.1	1.1	1.1	1.1
Prescribed burning for Range	Thousand Acres	.4	.4	.4	.4	.4
Prescribed burning for Wildlife	Thousand Acres	.4	.4	.4	.4	.4
MINERALS						
Leases	Number of Leases	63.0	63.0	63.0	63.0	63.0
Operating Plans	Number of Plans	213.0	213.0	213.0	213.0	213.0
Acres Reclaimed	Thousand Acres	.6	.6	.6	.6	.6
Acres Disturbed	Thousand Acres	1.1	1.1	1.1	1.1	1.1
HC&D						
Human Resources Program	Person years	71.0	71.0	71.0	71.0	71.0
LANDS						
Land Purchase & Acquisition &						
Exchange	Acres	600.0	600.0	600.0	600.0	600.0
Property Boundary Lines						
Location	Miles	3.0	1.8	1.8	1.8	1.8
Maintenance	Miles	0	1.2	1.2	1.2	1.2
Special Uses	Number of Permits					

1/ Due to non-regulated products

1/ Includes Christmas trees, pinyon nuts, post & poles, and fuelwood

TABLE II-23 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE F (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	19.3	19.3	19.3	19.3	19.3
FACILITIES						
Trail Const./Reconst.	Miles	.2	.5	.8	0	0
Arterial/Collector Road Construction	Miles	1	1.5	1.5	1.5	1.5
Arterial/Collector Road Reconst.	Miles	0	0	0	0	0
Timber Purch. Road Construction	Miles	0	0	0	0	0
Timber Purch. Road Reconstruction	Miles	0	0	0	0	0
BENEFITS M$	**THOUSAND DOLLARS**					
Recreation						
Developed		2727.0	2157.0	1476.0	1539.0	1539.0
Dispered		4160.0	5559.0	6458.0	6458.0	6458.0
Wilderness		8474.0	9236.0	9894.0	9894.0	9894.0
Range		1231.0	1211.0	1210.0	1210.0	1210.0
Timber		0	0	0	0	0
Other Timber 1/		63.0	63.0	63.0	63.0	63.0
Wildlife (WFUCs)		10002.0	12254.0	13625.0	13625.0	13625.0
COSTS M$	**THOUSAND DOLLARS**					
Total Forest Budget		3290.0	3289.8	3282.3	3295.6	3266.6
Protection		707.0	700.7	696.1	696.1	696.1
General Administration		461.0	461.0	461.0	461.0	461.0
Total Roads		68.0	68.0	68.0	68.0	68.0
App. Fund Roads		63.0	68.0	68.0	68.0	68.0
Purchaser Credit Roads		0	0	0	0	0
Recreation						
Developed Construction		0	0	0	29.3	0
Developed Reconstruction		1.2	0	13.5	0	0
Dispersed Trail Head		5.2	1.5	9.5	0	0
Dispersed Trail		1.1	4.0	6.2	0	0
Non-Forest Service Costs (exc. roads)		308.0	245.8	245.8	245.8	245.8
Returns To Treasury		1050.0	1092.0	1033.6	1039.0	1039.0

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood
2/ Timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE F TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of three new campgrounds in the Sierra Front on the most economical sites and some reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 14.2 miles of trails will enhance the dispersed recreation resource. Eight additional trail heads will be construction, sixty-three percent in the Sierra Front with the remaining thirty-seven percent occuring in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 440 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,394	6.000
Semi-primitive non-motorized	1,478,108	25.000
Semi-primitive motorized	987,100	20.000
Roaded natural	536,310	88.660
Rural	21,272	58.000

This alternative offers an increased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will increase due to no timber harvesting and reduced mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARESTON)?

This alternative provides for no commercial timber harvesting. The average age of the existing stands at the end of 200 years would be 277 years for Mixed Conifer, 245 years for Jeffrey pine and 275 years for Lodgepole pine.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timber products in Central Nevada with outputs over the fifty year period of 1,970 tons of pinyon nuts, 24,150 Christmas trees and 8,700 posts and poles. In addition, 18 percent of the fuelwood output would come from this working group.

In the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 3,570 MCF from the first period thru the fifth period. The total for the planning horizon is 17,850 MCF. This represents a decline from the present outputs. Fuelwood will be managed as the primary timber product coming mainly from salvage sales, the Pinyon-Juniper working groups and special fuelwood sale areas.

There are no suitable timber lands in this alternative.

No timber harvesting in any of the working groups will result in a corresponding increase of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extend practicable. Management programs would be designed to capitalize on opportunties to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Decreased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will remain the same as current. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas). A decrease in direct wildlife habitat improvement acres over the current situation would cause increased use of the riparian areas by some wildlife species.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,615,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs will decrease from 940,000 AUM's in the first period to 923,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will increase from 52,750 AUMs in the first period to 55,810 in the fifth period, for a total of 278,000 AUMs for the fifty year period. Range improvement and range management work will be accomplished on 20,000 acres by prescribed fire with the remaining acres by other methods of manipulating vegetative for the fifty year period. Extensive management would occur on 50 percent of the acres, while intensive management would total 50 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk populations in central Nevada are expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 90% of the range will be in satisfactory condition by 2030. A considerable amount of the improvement in range condition is due to the removal of livestock from some areas of poor and very poor condition. Most of these reductions will be in riparian areas.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will decrease.

Because of the decrease in range demands of domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. The decrease in acres of direct wildlife habitat improvement over the current situation would increase pressure on riparian areas for some wildlife species. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

No road construction connected with timber harvesting is planned in any management areas. Road location is dictated by resource management requirements and physical limitations such as topography, environmentalfactors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

All roadless areas will be designated as wilderness. This could result in little or no increase of road construction due to mineral exploration. In addition, the construction of miles of dispersed recreation trails will enhance the existing trail system for the Forest visitors.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

This alternative has no construction or reconstruction for the fifty year period supporting the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstron pass. Specific project locations will be handled through the Environmental Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 10,290 operating plans over the 50 year planning period. Decreased funding in this alternative for the minerals program will result in decreased in management and administration level in the Supervisor's office and at the district level. This alternative will have 70% (7,203 plans) compliance checks done on both the ongoing and future projects for the fifty year period on the complexity of projects or areas with high resource or public safety value.

This alternative would have 1,992.2 M acres of roadless areas designated as wilderness recommendation. It would have 775.6 M acres of high mineral potential lands designated for wilderness recommendation.

The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting surface resource values. There will be a moderate response to the 10,290 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The Forest has 135.1 M acres of wilderness and this alternative will recommend an additional 153.0 M acres in California and 1,839.0 M acres in Nevada, for a total of 1,992.0 M acres for both states. This is 100 percent of the roadless area identified thru public involvement. Within this total recommendation, 1,113.6 M acres are considered high quality wilderness (see Appendix C), while 775.6 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative G provides habitat mostly for old growth species. The absence of timber harvesting will not favor early successional wildlife species. Wildlife user-days would total 11,432,000 for the fifty year planning horizon. Fishing opportunities would total 19,671,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable population of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 2000 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2005.

This alternative will have 66,460 acres of direct wildlife habitat improvement projects for the fifty year period, with fifty percent in the Sierra and the remaining in central Nevada. Work will be accomplished on 21,599 acres by the use of prescribed fire with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 255,100 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will increase slightly in some localized areas. The decrease in direct wildlife habitat improvement over the current situation would increase pressure on some of the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce some conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the deployment of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction of dispersed recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 1,992.2 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Areas status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE G
(1985 HIGH PRODUCTIVITY RPA/HIGH WILDERNESS)

This alternative was designed to emphasize livestock management and produce a moderate level of sawtimber volume while increasing fire protection. The objective of this alternative is, (1) to increase the grazing capacity by improved range management practices, and (2) increase timber management thru increased harvesting.

To prepare this alternative, the following assumptions were necessary:

(1) Adequate funding will be available.

(2) Funds for increasing the grazing capacity will be available.

(3) Present suitable acres for timber management will remain constant.

Two management goals were needed to model this alternative:

(1) Visual quality will be at acceptable level in sensitive areas.

(2) Increase sawtimber to a high level.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-24 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-25 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative G.

TABLE II-24 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE G
(TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	13.9	13.9	13.9	13.9	13.9
Value (MM$)	5.0	5.1	5.1	5.0	4.8
Fisheries					
Yield (M WFUDs)	2733.	2972.	3160.	3160.	3160.
Value (MM$)	48.	53.	56.	56.	56.
Wildlife					
Yield (M WFUDs)	1483.	1647.	1744.	1744.	1744.
Value (MM$)	36.	4.0	4.3	4.3	4.3
Minerals					
Operating plans	2650.	2650.	2650.	2650.	2650.
Acres Reclaimed	5420.	5420.	5420.	5420.	5420.
Acres Disturbed	13780.	13780.	13780.	13780.	13780.
Water					
Yield (M Ac-Ft)	9460.	9100.	8800.	8650.	8590.
Fuelwood					
Yield (MMCF)	5.1	5.1	5.1	5.1	5.1
Value (MM$)	.60	.60	.60	.60	.60
Range					
Livestock (M AUM)	962.	1026.	1040.	1040.	1040.
Value (MM$)	12.6	13.5	13.6	13.6	13.6
Wild horses (M AUM)	50.	51.	50.	50.	50.
Dispered Rec.*					
Yield (M RVDs)	13029.	14112.	14836.	14836.	14836.
Value (MM$)	39.	42.	45.	45.	45.
Developed Rec.					
Yield (M RVDs)	10900.	11520.	11940.	13220.	13940.
Value (MM$)	33.	35.	36.	40.	42.
Wilderness*					
Yield (M RVDs)	9748.	10576.	11301.	11301.	11301.
Value (MM$)	78.	85.	90.	90.	90.
Undiscounted Costs (MM$)	60.	60.	60.	61.	62.
Undiscounted Value (MM$)	295.	295.	310.	315.	316.

Total PNW at 4% for five periods = 524.4 (1978 dollars)
Long-Term Sustained Yield Capacity = 1.50 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-25 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE G (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	1090.0	1152.0	1194.0	1322.0	1394.0
Dispersed Recreation Use	Thousand RVDs	1303.0	1401.2	1483.6	1493.6	1493.6
Wilderness Use	Thousand RVDs	975.0	1057.6	1130.1	1130.1	1130.1
WILDERNESS						
New Wilderness acres	Thousand Acres	1348.0	1348.0	1348.0	1348.0	1348.0
RECREATIONAL OPPORTUNITY SPECTRUM						
Primitive	Thousand Acres	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1373.1	1339.1	1322.0	1305.0	1286.0
Semi-primitive motorized		1057.1	1031.1	1007.0	975.0	947.0
Roaded natural		536.3	624.4	668.4	712.5	756.5
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	1481.6	1481.6	1481.6	1481.6	1481.6
Retention		208.1	208.1	203.9	199.7	195.5
Partial Retention		581.4	581.4	543.6	505.8	468.0
Modification		675.6	675.6	713.4	751.2	789.0
Max Modification		225.0	225.0	229.2	233.4	237.6
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	.7	.7	.7	.7	.7
Management Indicator Species	Thousand Animals					
Goshawk	Breeding Pairs	66.0	71.0	72.0	73.0	73.0
Pine marten	Thousand Animals	1.0	1.1	1.2	1.3	1.3
Paiute cutthroat trout	Fish/Stream/Mile	230.0	250.0	300.0	350.0	400.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	220.0	280.0	350.0	420.0
Williamson's sapsucker	Thousand Animals	3.4	3.7	4.0	4.3	4.7
Hairy woodpecker	Thousand Animals	5.0	5.2	5.7	6.3	6.8
Mule deer	Thousnad Animals	20.0	27.1	26.4	26.4	26.4
Sage grouse	Thousand Animals	17.3	17.0	16.5	16.0	15.5
Yellow warbler	Thousand Animals	6.0	5.8	5.6	5.4	5.3
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates (BCI)		75.0	74.0	73.0	73.0	73.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	218.0	242.2	262.5	262.5	262.5
Wilderness	Thousand of WFUDs	203.0	219.6	227.8	227.8	227.8
Improvement	Thousand of WFUDs	2.3	2.3	2.3	2.3	2.3

TABLE II-25 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE G (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	100.0	106.0	107.4	107.4	107.4
Domestic Livestock (Permitted Use)	Thousand AUMs	96.0	102.7	104.0	104.0	104.0
Wild horses (Permitted Use)	Thousand AUMs	5.0	5.1	5.0	5.0	5.0
TIMBER						
Program Sales Offered 2/	Thousand CF	1389.0	1388.9	1388.9	1391.8	1391.8
	Millions BF	9.0	9.0	9.0	9.0	9.0
Reforestation Artificial	Thousand Acres	.214	.214	.106	.090	.100
Timber Stand Improvement	Thousand Acres	.075	.075	.075	.075	.075
Fuelwood	Thousand CF	510.0	510.0	510.0	510.0	510.0
	Thousand Cords	5.7	5.7	5.7	5.7	5.7
WATER						
Meeting water Quality standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.9	1.3	1.2	1.2	1.2
Prescribed burning for Range	Thousand Acres	.6	.6	.6	.6	.6
Prescribed burning for Wildlife	Thousand Acres	.2	.2	.2	.2	.2
MINERALS						
Leases	Number of Leases	63.0	63.0	63.0	63.0	63.0
Operating Plans	Number of Plans	265.0	265.0	265.0	265.0	265.0
Acres Reclaimed	Thousand Acres	.6	.5	.5	.5	.5
Acres Disturbed	Thousand Acres	1.4	1.4	1.4	1.4	1.4
HC&D						
Human Resources Program	Person Years	147.0	147.0	147.0	147.0	147.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	600.0	600.0	600.0	600.0	600.0
Property Boundary Lines						
Location	Miles	24.0	18.1	13.4	18.1	17.4
Maintenance	Miles	0	6.0	6.1	6.0	5.8
Special Uses	Number of Permits					

TABLE II-25   ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE G (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Thousand Acres	10.9	10.9	10.9	10.9	10.9
FACILITIES						
Trail Const./Reconst.	Miles	1.3	.1	.5	0	0
Arterial/Collector Road Construction	Miles	4.4	3.6	2.6	1.5	1.6
Arterial/Collector Road Reconst.	Miles	28.0	28.8	29.8	30.9	31.5
Timber Purch. Road Construction	Miles	6.2	5.1	3.5	2.2	2.4
Timber Purch. Road Reconstruction	Miles	1.6	2.5	3.7	4.9	5.5
BENEFITS M$	THOUSAND DOLLARS					
Recreation						
Developed		3270.0	3457.0	3582.0	3966.0	4182.0
Dispereu		3909.0	4214.0	4415.0	4451.0	4451.0
Wilderness		7799.0	8461.0	9041.0	9041.0	9041.0
Range		1264.0	1347.0	1364.0	1364.0	1364.0
Timber		504.0	508.8	505.5	498.3	475.5
Other Timber 1/		93.0	93.0	93.0	93.0	93.0
Wildlife (WFUDs)		8475.0	9295.0	9865.0	9865.0	9856.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		5988.0	5987.9	5987.6	6040.9	6184.9
Protection		717.0	699.4	684.8	584.8	694.8
General Administration		686.0	686.0	686.0	686.0	686.0
Total Roads		1070.0	1013.0	981.9	958.5	1041.8
App. Fund Roads		923.0	874.7	850.7	823.0	891.6
Purchaser Credit Roads		147.0	138.3	131.2	135.5	160.2
Recreation						
Developed Construction		246.3	1629.1	1427.9	1645.7	1350.7
Developed Reconstruction		138.5	0	158.1	0	37.8
Dispersed Trail Head		8.8	0	0	0	0
Dispersed Trails		10.4	6.9	36.2	0	0
Non-Forest Service Costs (exc. roads)		556.0	555.5	555.5	555.5	555.5
Returns To Treasury		1362.0	1609.2	1649.8	1707.6	1670.5

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood

2/ Timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE G TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of thirteen new campgrounds in the Sierra Front on the most economicial sites and reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 18.0 miles of trails will enhance the dispersed recreation resource. Five additional trail heads will be constructed, one hundred percent in the Sierra Front. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 6,389 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,394	5.000
Semi-primitive non-motorized	1,288,000	20.000
Semi-primitive motorized	947,000	15.000
Roaded natural	756,518	102.988
Rural	21,272	58.000

This alternative offers a decreased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will decrease due to increased timber harvesting and more activity in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Wlaker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides 13.90 million cubic feet of timber in the first period and has an annual long-term sustained yield capacity of 1.50 million cubic feet. Timber will come mainly from Dog Valley and Alpine Co.

Within the fifty year planning horizon, decade volume of timber harvested will remain constant at 13.90 million cubic feet per period.

Over the fifty year period, 69.5 million cubic feet of sawtimber in the Mixed Conifer, Jeffrey pine and Lodgepole pine working groups would be harvested. Even-age management would be the predominant silvicultural system used with both natural and artificial regeneration practices employed. Uneven-aged management would be used on a case by case basis for special managment objectives (Old growth habitat, special wildlife habitat requirements, visual quality objectives). The average age of the existing stands at the end of 200 years would be 92 years for Mixed Conifer, 98 years for Jeffrey pine and 124 years for Lodgepole pine. A small portion of the timber volume produced in this alternative is primarily from management activities directed at wildlife habitat improvement projects. Within this alternative, 19,180 acres of regeneration over the fifty year period will be by natural methods, with the remaining 6,340 acres being by artificial means. The use of these systems is the most cost effecient method of achieving the timber objective.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 2,672 tons of pinyon nuts, 225,400 Christmas trees and 23,900 posts and poles in addition to the sawtimber output. In addition, 29 percent of the fuelwood output would come from this working group.

In the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 5,100 MCF from the first period thru the fifth period. The total for the planning horizon is 25,500 MCF. This represents a decline from the present outputs. Fuelwood will be produced both from thinning of commercial timber stands and as incidental yield resulting from timber harvesting activities.

Suitable commercial timber lands will total 62,174 acres in this alternative.

Increased timber harvesting over the current situation of the Mixed Conifer, Jeffrey pine and Lodgepole pine working groups will result in a corresponding decrease of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts.

All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extent practicable. Management programs would be designed to capitalize on opportunties to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Increased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will increase slightly. Additional acres that will be brought up to satisfactory condition by 2030 (approximately 5% over the current situation) will reduce some conflicts, however, increased grazing and a decrease in direct wildlife habitat improvement acres over current will result in an overall increase of conflicts.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 5,108,000 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs will increase from 962,000 AUMs in the first period to 1,040,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant at 50,000 AUMs in the first period to the fifth period, for a total of 251,000 for fifty years. Range improvement and range management work on 28,000 acres will be accomplished by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur on 30 percent, while intensive management would total 70 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk population in central Nevada is expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 95% of the range will be in satisfactory condition by 2030. Much of the improvement in range condition and wildlife habitat will be a result of improvement projectsand intensive management.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals, will be more complimentary.

Because of the increase in range usage by domestic livestock, the riparian areas will come under increased use. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Road construction is planned in management areas 1 thru 6, and road reconstruction in management areas 1 thru 12. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 754.8 M acres of roadless area not being designated as wilderness could result in an increase of road construction due to mineral exploration. In addition, the construction of 18.0 of miles of dispersed recreation trails will enhance the existing trail system for the Forest visitors.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

This alternative has 62.0 miles of local road construction and 16.0 miles of reconstruction in the first 10 years. The total miles of construction and reconstruction (local, arterial and collector) for the fifty year planning horizon would require 331.0 miles of new construction and 1671.2 miles of reconstruction. The majority of this road work would be done in support of the timber sale program.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat.

Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther pass and Armstron pass. Specific project location will be handled through the Environmental Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 13,300 operating plans over the 50 year planning period. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. This alternative will have 78% (10,393) of compliance checks done on both the ongoing and future projects for a fifty year period based on the complexity of projects or areas with high resource or public safety value.

This alternative would have 1,348.0 M acres of roadless areas designated as wilderness recommendation. High mineral potential land, 421.6 M acres, would be designated for wilderness recommendation. The level of the mineral program in this alternative will be medium high and designed to develop the mineral resources to their potential. There will be accelerated response to the 13,300 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The Forest has 135.1 M acres of wilderness and this alternative will recommend an additional 153.0 M acres in California and 1,195.0 M acres in Nevada, for a total of 1,348.0 M acres for both states. This is 68 percent of the roadless area identified thru public involvement. Within this total recommendation, 1,218.2 M acres are considered high quality wilderness (see Appendix C), while 421.6 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative G provides a mixture of wildlife habitat. Increased timber harvesting over the current situation will favor some early successional wildlife species. Wildlife user-days would total 8,362,000 for the fifty year planning horizon. Fishing opportunities would total 15,185,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 1995 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2000.

This alternative will have 34,480 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. This work will be accomplished on 11,206 acres by the use of prescribed fire with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 144,000 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will increase. The reduction of direct wildlife habitat improvement over the current situation would increase pressure in localized raparian areas by certain wildlife species. Range management activities will bring an additional 5% into satisfactory condition

(28,180 acres) over the current management situation. These additional acres over the minimum management requirments would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the development of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration.

However, growth from mineral development and Department of Defense activities remains an issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas, 1,347,547 acres, recommended as wilderness designation will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustment in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

ALTERNATIVE H
(PNV ASSIGNED VALUES)

The purpose of this alternative is to maximize net public benefits consistent with resource integration and management requirements (36 CFR Part 219). The net public benefits are "the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not... consistent with the principles of multiple use and sustained yield."

To prepare this alternative, the following three assumptions were necessary :

(1) Adequate funding will be available.

(2) Viable wildlife population is maintained.

(3) Maintain viable wild free roaming horses and burros.

One management goal was needed to model this alternative:

(1) Yields and management activities that maximize net public benefit would be utilized to limits consistent with the minimum management requirements of other resources.

The impact of placing constraints on this alternative is summarized in Appendix B.

Table II-26 Lists yields, costs and benefits of selected resources per planning period over the fifty year planning horizon. Table II-27 Lists average annual yields, activities and costs for RPA time frames.

Table II-29 Lists the management area prescriptions associated with Alternative H.

TABLE II-26 RESOURCE YIELD WITH ASSOCIATED VALUES FOR ALTERNATIVE H (TEN YEAR PERIOD TOTAL)

	Planning period (Decade)				
Scheduled Yield	1	2	3	4	5
Timber					
Yield (MMCF)	0	0	0	0	0
Value (MM$)	0	0	0	0	0
Fisheries*					
Yield (M WFUDs)	3735.	4361.	4688.	4961.	5104.
Value (MM$)	67.	78.	84.	88.	91.
Wildlife*					
Yield (M WFUDs)	2125.	2395.	2576.	2713.	2784.
Value (MM$)	5.2	59.	63.	66.	68.
Minerals					
Operating plans	2130.	2130.	2130.	2130.	2130.
Acres Reclaimed	6450.	6450.	6450.	6450.	6450.
Acres Disturbed	11220.	11220.	11220.	11220.	11220.
Water					
Yield (M Ac-Ft)	9495.	9495.	9495.	9495.	9495.
Fuelwood					
Yield (MMCF)	4.7	4.7	4.7	4.7	4.7
Value (MM$)	.55	.55	.55	.55	.55
Range					
Livestock (M AUM)	938.	926.	925.	925.	925.
Value (MM$)	12.3	12.2	12.1	12.1	12.1
Wild horses (M AUM)	58.	58.	58.	58.	58.
Dispered Rec.*					
Yield (M RVDs)	20396.	23969.	25781.	27642.	28618.
Value (MM$)	61.	72.	77.	83.	86.
Developed Rec.					
Yield (M RVDs)	9090.	7190.	4920.	5130.	5130.
Value (MM$)	27.	22.	15.	15.	15.
Wilderness*					
Yield (M RVDs)	7634.	8588.	9410.	9410.	9410.
Value (MM$)	61.	69.	75.	75.	75.
Undiscounted Costs (MM$)	50.	50.	50.	50.	50.
Undiscounted Value (MM$)	378.	378.	418.	418.	418.

Total PNW at 4% for five periods = 744.4 (1978 dollars)
Long-Term Sustained Yield Capacity = 0.0 MMCF/year

* valued yields NOT supply
Public & Private

TABLE II-27 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE H (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RECREATION						
Developed Recreation Use	Thousand RVDs	909.0	719.0	492.0	513.0	513.0
Dispersed Recreation Use	Thousand RVDs	2040.0	2396.8	2578.1	2764.2	2861.0
Wilderness Use	Thousand RVDs	763.0	858.8	941.0	941.0	941.0
WILDERNESS						
New Wilderness acres	Acres	1464.2	1464.2	1464.2	1464.2	1464.2
RECREATIONAL OPPORTUNITY SPECTRUM						
Primitive		147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1373.1	1373.1	1373.1	1373.1	1373.1
Semi-primitive motorized		1087.1	1087.1	1037.1	1037.1	1037.1
Roaded natural		536.3	536.3	536.3	536.3	536.3
Rural		21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY						
Preservation	Thousand Acres	1600.1	1600.1	1600.1	1600.1	1600.1
Retention		194.3	194.3	191.9	189.5	187.1
Partial Retention		557.3	557.3	535.7	514.1	492.5
Modification		598.2	598.2	619.8	641.4	663.0
Max Modification		221.8	221.8	224.2	226.6	229.0
WILDLIFE AND FISHERIES						
Wildlife Habitat Improvement	Thousand Acres	3.2	3.2	3.2	3.2	3.2
Management Indicator Species	Thousand Animals					
Goshawk	Breeding Pairs	66.0	60.0	55.0	50.0	41.0
Pine marten	Thousand Animals	1.0	.9	.9	.8	.8
Paiute cutthroat trout	Fish/Stream/Mile	230.0	250.0	280.0	350.0	400.0
Lahontan cutthroat trout	Fish/Stream/Mile	200.0	240.0	270.0	340.0	390.0
Williamson's sapsucker	Thousand Animals	3.4	3.0	2.7	2.4	2.1
Hairy woodpecker	Thousand Animals	5.0	4.5	4.1	3.7	3.1
Mule deer	Thousand Animals	30.0	32.0	33.3	33.3	33.3
Sage grouse	Thousand Animals	17.3	16.0	15.5	14.5	14.0
Yellow warbler	Thousand Animals	6.0	5.5	5.0	4.5	4.0
Palmer's chipmunk	Thousand Animals	6.6	6.6	6.6	6.6	6.6
Yellow-bellied sapsucker	Thousand Animals	1.5	1.5	1.5	1.5	1.5
Macroinvertebrates (BCI)		75.0	85.0	90.0	90.0	90.0
Dispersed Wildlife Use						
General Forest Area	Thousand of WFUDs	300.0	682.3	785.5	785.5	795.5
Wilderness	Thousand of WFUDs	127.0	149.4	160.6	160.6	160.6
Improvement	Thousand of WFUDs	9.0	9.3	9.3	9.3	9.3

TABLE II-27 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE H (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
RANGE						
Domestic Livestock (Capacity)	Thousand AUMs	98.0	96.9	96.9	96.9	96.9
Domestic Livestock (Permitted Use)	Thousand AUMs	94.0	92.6	92.5	92.5	92.5
Wild horses (Permitted Use)	Thousand AUMs	5.6	5.8	5.8	5.8	5.8
TIMBER						
Program Sales Offered 2/	Thousand CF	0	0	0	0	0
	Millions BF	0	0	0	0	0
Reforestation Artificial	Thousand Acres	.070 2/	.020 2/	.020 2/	.020 2/	.020 2/
Timber Stand Improvement	Thousand Acres	.301 2/	.101 2/	.101 2/	.101 2/	.101 2/
Fuelwood	Thousand CF	474.0	474.0	474.0	474.0	474.0
	Thousand Cords	5.3	5.3	5.3	5.3	5.3
WATER						
Meeting Water Quality Standards	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0
PROTECTION						
Fuel breaks and Fuel Treatment	Thousand Acres	1.0	.9	.8	.8	.8
Prescribed burning for Range	Thousand Acres	.6	.6	.6	.6	.6
Prescribed burning for Wildlife	Thousand Acres	1.0	1.0	1.0	1.0	1.0
MINERALS						
Leases	Number of Leases	63.0	63.0	63.0	63.0	63.0
Operating Plans	Number of Plans	213.0	213.0	213.0	213.0	213.0
Acres Reclaimed	Thousand Acres	.7	.7	.7	.7	.7
Acres Disturbed	Thousand Acres	1.1	1.1	1.1	1.1	1.1
HC&D						
Human Resources Program	Person Years	147.0	147.0	147.0	147.0	147.0
LANDS						
Land Purchase & Acquisition & Exchange	Acres	800.0	800.0	800.0	800.0	800.0
Property Boundary Lines						
Location	Miles	10.0	7.5	7.5	7.5	7.5
Maintanance	Miles	0	2.5	2.5	2.5	2.5
Special Uses	Number of Permits					

2/ Due to non-regulated products

TABLE II-27 ANNUAL YIELDS, ACTIVITIES AND COSTS FOR ALTERNATIVE H (AVERAGE ANNUAL VALUES)

Program Element and Activity	Unit of Measure	1986 1990	1991 2000	2001 2010	2011 2020	2021 2030
SOILS						
Soil and water improvement acres	Acres	29.4	29.4	29.4	29.4	29.4
FACILITIES						
Trail Const./Reconst.	Miles	.7	1.1	.7	0	0
Arterial/Collector Road Construction	Miles	0	0	0	0	0
Arterial/Collector Road Reconst.	Miles	26.5	26.5	26.5	26.5	26.5
Timber Purch. Road Construction	Miles	0	0	0	0	0
Timber Purch. Road Reconstruction	Miles	0	0	0	0	0
BENEFITS M$	THOUSAND DOLLARS					
Recreation						
Developed		2727.0	2157.0	1476.0	1539.0	1539.0
Dispersed		6119.0	7191.0	7734.0	8293.0	8595.0
Wilderness		6107.0	6871.0	7528.0	7528.0	7528.0
Range		1231.0	1215.0	1214.0	1214.0	1214.0
Timber		0	0	0	0	0
Other Timber 1/		70.0	70.0	70.0	70.0	70.0
Wildlife (WFUDs)		12624.0	13635.0	14663.0	15480.0	15910.0
COSTS M$	THOUSAND DOLLARS					
Total Forest Budget		5011.0	5011.2	5003.9	5016.9	4988.0
Protection 940 & 940A		702.0	633.1	633.1	633.1	633.1
General Administration		686.0	656.0	686.0	686.0	686.0
Total Roads		576.0	576.2	576.2	576.2	576.2
App. Fund Roads		576.0	576.2	576.2	576.2	576.2
Purchaser Credit Roads		0	0	0	0	0
Recreation						
Developed Construction		0	0	0	29.3	0
Developed Reconstruction		1.2	0	13.5	0	0
Dispersed Trail Head		5.0	1.5	10.0	0	0
Dispersed Trails		5.1	8.6	5.9	0	0
Non-Forest Service Costs (exc. roads)		618.0	555.5	555.5	555.5	555.5
Returns To Treasury		1047.0	1091.4	1033.2	1038.6	1038.6

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood
2/ Timber outputs remain constant from the fifth to the twentieth period

RESPONSE OF ALTERNATIVE H TO MAJOR ISSUES

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

There will be construction of two new campgrounds in the Sierra Front on the most economical sites and some reconstruction of existing sites within this alternative. In addition to the developed recreation construction, construction/reconstruction of 24.4 miles of new dispersed recreation trails will enhance the dispersed recreation resource. Four additional trail heads will be constructed, fifty percent in the Sierra Front with the remaining fifty percent occurring in central Nevada. There will be an emphasis on improving midweek use of facilities at Mt. Charleston. This total construction/reconstruction will supply an additional 440 PAOTs.

The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized and primitive. This alternative would offer the following recreational opportunities based on ROS settings:

ROS SETTING	ACRES	MMRVDs*
Primitive	147,394	5.000
Semi-primitive non-motorized	1,478,000	25.000
Semi-primitive motorized	987,100	25.000
Roaded natural	536,300	111.369
Rural	21,272	58.000

This alternative offers a decreased mixture of acreage and recreational opportunities from the present ROS settings. Scenic values in this alternative will increase due to decreased timber harvesting and slightly higher emphasis in mineral exploration and leasing. The East Carson and West Walker rivers are eligible for wild scenic and/or recreation river classification. The East Walker may be eligible pending a study. Lands surrounding the east fork of the Carson, the west fork of the Walker and the east fork of the Walker rivers will be protected to maintain their present scenic values. These river corridors will be protected until suitability studies and a recommendation can be made. See Table IV-1 in Chapter IV for the effects of this alternative on off-road vehicle access.

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARLESTON)?

This alternative provides for no commercial timber harvesting. The average age of the existing stands at the end of 200 years would be 280 years for Mixed Conifer, 249 years for Jeffrey pine and 281 years for Lodgepole pine.

There will be management of the Pinyon-Juniper working group, and although unsuitable for timber production, it does produce other timber products in central Nevada with outputs over the fifty year period of 1,536 tons of pinyon nuts, 24,150 Christmas trees and 8,700 posts and poles. In addition, 32 percent of the fuelwood output would come from this working group.

In the Mt. Charleston area, management of the resident stands will occur, mainly for the control of insects and disease, esthetics and retaining the Ponderosa pine status.

Fuelwood output is at 4,740 MCF from the first period thru the fifth period. The total for the planning horizon is 23,700 MCF. This represents a decline from the present output. Fuelwood will be managed as the primary timber product coming mainly from salvage sales, the Pinyon-Juniper working group and special fuelwood sale areas.

There are no suitable timber lands in this alternative.

Decreased timber harvesting of the Mixed Conifer working groups will result in a corresponding increase of acres available for old growth habitat.

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. Preferential consideration would be given to riparian area dependent resources such as fish, wildlife, soil, water and vegetation over other resources in case of unresolvable conflicts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extend practicable. Management programs would be designed to capitalize on opportunties to resolve and preserve the natural and beneficial values served by floodplains, and to preserve, enhance and manage the natural and beneficial value of wetlands. Specific forest wide riparian area standards are developed to guide management activities in riparian areas.

The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives forestwide. On mining activities, there will be short term degradation of soil on a very specific site by site basis due to the loss of local vegetation, road construction and specific mining activities. Water quality from these areas will meet state water quality standards. The standards and guidelines that will be used consist of constraints on management by either avoidance of specific sites and/or activities or requirements for techniques that diminish or mitigate adverse impacts. Soil and water resource monitoring will be conducted to evaluate the effectiveness of standards and guidelines compliance with soil and water minimum management requirements.

Decreased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflict will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

This alternative provides 4,640,302 Animal Unit Months (AUMs) of domestic livestock grazing over the fifty year planning horizon. Within the fifty year planning horizon, domestic livestock AUMs decrease from 940,000 AUMs in the first period to 925,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant from 58,000 AUMs in the first period to 58,000 in the fifth period, for a total 290,000 for the fifty years. Range improvement and range management work will be accomplished on 28,000 acres by prescribed fire with the remaining acres by other methods of manipulating vegetation for the fifty year period. Extensive management would occur on 30 percent of the acres, while intensive management would total 70 percent.

Emphasis will be given to deer and elk. Conflicts in use of range by big game and livestock will be reduced as range condition improves and wildlife habitat improvements are completed. Elk populations in central Nevada are expected to level off within 20 years. All allotment management plans will be completed and implemented by 1995. Approximately 90% of the range will be in satisfactory condition by 2030. Much of the improvement in range condition and wildlife habitat will be by improvement projects and intensive management.

Competition for forage by grazing and browsing animals, domestic livestock, wild free-roaming horses and burros, recreational livestock, and big game animals will decrease.

Because of the decrease in range demands of domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions. Grazing systems will be developed in AMP's to maintain/enhance riparian area/fisheries habitat components or resources.

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

No new road construction is planned. Reconstruction will be done in management areas in support of mining activities. Road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics.

Design criteria used for roads consists of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

The 638.6 M acres of roadless area not being designated as wilderness could result in an increase of road construction due to mineral exploration.

Roads constructed for mining activities normally would be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

This alternative has no construction or reconstruction of local roads in the first period. The total miles of construction and reconstruction (local,arterial and collector) for the fifty year planning horizon would require no miles of new construction and 1326.2 miles of reconstruction.

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

This alternative contains a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

This alternative provides for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)

Sylmar-Los Angeles Transmission Line (East of Mono Lake)

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line and at Luther pass. Specific project location will be handled through the Environment Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Based on the acreage available for exploration and development, and the management emphasis of this alternative, it is projected that opportunities for minerals activities may result in 10,295 operating plans over the 50 year planning period. The same funding in this alternative, as is presently done for the minerals program, will result in the same management and administration level in the Supervisor's office and at the district level. This alternative will have 70% (7206) compliance checks done on both the ongoing and future projects for fifty year period based on the complexity of projects or areas with high resource or public safety value.

This alternative would have 1,464.2 M acres of roadless areas designated as wilderness recommendation. High mineral potential land, 469,636 acres, would be designated for wilderness recommendation.

The level of the minerals program in this alternative will be moderate and designed to develop the mineral resources to their potential while protecting the surface resources. There will be moderate response to the 10,295 operating plans. This alternative would provide for the sale of common variety minerals.

Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

This alternative incorporates the decisions contained in the California Wilderness Act of 1984. The Forest has 135.1 M acres of wilderness and this alternative will recommend an additional 14.0 M acres in California and 1450.2 M acres in Nevada, for a total of 1464.2 M acres for both states. This is 73 percent of the roadless area identified thru public involvement. Within this total recommendation, 1078.9 M acres are considered high quality wilderness (see Appendix C), while 469.6 M acres are considered to contain high mineral potential. See Table II-34 for a listing of the total areas.

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Alternative H provides a mixture of wildlife habitat. Total wildlife user-days would total 12,593,000 for the fifty year planning horizon. Fishing opportunities would total 22,849,000 WFUDS over the fifty year planning horizon.

Minimum management requirements (MMRs) provide management practices which will maintain viable populations of all wildlife and fish species and provide for the enhancement and recovery of threatened and endangered species. By the year 2000 Lahontan cutthrout trout will be recovered and Paiute trout will be recovered by 2005.

This alternative will have 158,006 acres of direct wildlife habitat improvement projects for the fifty year period, with fifty percent in the Sierra and the remaining in central Nevada. This work will be accomplished on 51,320 acres by the use of prescribed fire with the remaining acres by other methods of manipulating vegetation. The total WFUDS output from all the direct habitat improvement projects is 464,750 over the fifty year planning horizon.

Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase of direct wildlife areas over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum management requirements would reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

This alternative has standards and guidelines to protect all the forest resources. A major component of the original planning issue revolved around the development of the MX missile in central Nevada. This issue has been resolved and is no longer a concern for consideration. However, growth from mineral development and Department of Defense activities remains an issue and is addressed in this alternative. The Sierra initiative proposal is not included in this alternative. Construction and reconstruction of recreation facilities in this alternative will occur in the Sierra where the demand will be greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Roadless areas recommended as wilderness designation, 1464.2 M acres, will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustments in this alternative, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

This alternative will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years. Any new proposal for Research Natural Areas will be handled through the Environmental Analysis process.

COMPARISON OF ALTERNATIVES

The purpose of land management planning is to identify and select for implementation the plan alternative that most nearly maximizes net public benefits. Net public benefits are defined as the

> "...overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not...consistent with the principle of multiple use and sustained yield."

There is no mathematical formula available to define the desired alternative. Indeed, there are differences of opinion about whether particular effects of alternatives are positive or negative. Therefore, it is necessary to define all the major effects of each alternative as the basis for review, judgment and an eventual selection.

The remaining pages in this chapter offer a summary of the nine alternatives. Tables, graphs and narratives are used to display the effects which differ significantly among alternatives. For a detailed display of decade outputs of the various resources by alternative, seeAppendix B. Table II-30 shows the total output over fifty years for the various resources by alternatives. The figures are based on these fifty year totals unless otherwise specified. More detailed discussions of these effects are found in Chapter IV.

Response to Issue Topics

As a result of the "identification of issues, concerns and opportunities" (step one of land management planning), the Forest Plan has eleven issue topics (refer to the discussion in Appendix A). A detailed discussion of the response of each alternative to individual issue topics was part of the presentation of alternatives (the previous section of this chapter). This section will supplement those discussions by presenting (1) the range of resource yields and/or a narrative description of standards and guidelines within alternatives needed to respond to that issue topic (where appropriate) and (2) a capsule description of pertinent differences between alternatives in responding to issue topics where the differences are significant.

TABLE II-28 COMPARISON OF ACRES SUITABLE FOR TIMBER PRODUCTION

Table represents the acres selected for timber production by Alternatives. Additional information regarding suitability is described in Section III AFFECTED ENVIRONMENT and in Appendix B.

Alternative	Suitable	Unsuitable
A*	48,317	1,599,290
B	82,795	1,564,812
C	65,663	1,581,944
D	79,229	1,568,378
E	0	1,647,607
P**	70,583	1,577,024
F	0	1,647,607
G	62,174	1,585,433
H	0	1,647,607

* Current Management
** Preferred Alternative

TABLE II-29 ACRES BY MANAGEMENT AREA PRESCRIPTION
In Thousand Acres

Prescription	Alt A Current Program	Alt B Market Emphasis	Alt C Nonmarket Emphasis	Alt D RPA 1980	Alt E Constrained Budget	Alt P Mkt/Nonmkt Mix	Alt F 100 % Wilderness	Alt G RPA 1985	Alt H PNV
1. Wilderness-Designated 1/ and Recommended	344.9	135.1	1248.7	727.8	441.2	346.6	2127.3	1483.1	1599.3
2. Minimum Level					1062.5				1.4
3. Intensive Wildlife and Dispersed Recreation		1853.7	1273.6	1420.5	432.9	2104.7	985.6	457.6	968.3
4. Stewardship Wildlife, Range, and Recreation	2499.7	260.1	530.7	243.8	687.0	96.4	44.0	131.7	59.2
5. Market Opportunities		475.8		591.2	488.5	73.1	14.8	905.9	21.7
6. Wild Horses, Wildlife, and Dispersed Recreation	0	288.2	118.7	86.6	62.3	363.6	0	13.9	186.0
7. Further Planning	181.1								
8. Intensive Dispersed Recreation Wildlife, and Current Developed Recreation									335.8
9. Moderate Recreation, Wildlife, and Range	121.0	13.1			13.1				
10. Moderate Timber and Range	25.0			13.9		25.0			
11. Market Opportunities and Developed Recreation		140.7		87.9		162.3		179.5	

1/ Acreage includes existing Hoover, Carson Iceberg and the Mokelumne addition wilderness

Management Area Prescription

1. Wilderness - Designated and Recommended - This prescription (Rx) is designed to manage the established and recommended Wilderness Area to meet objectives and intent of the Wilderness Act.

2. Minimum Level - This Rx is designed to protect minimum soil and water value and to protect public safety. Minimum level of Management.

3. Intensive Wildlife and Dispersed Recreation - This Rx emphasizes the amenity values of Wildlife and Dispersed Recreation.

4. Stewardship Wildlife, Range and Recreation - This Rx is a maintenance level program level close to current level Management.

5. Market Opportunities - Rx emphasizes Timber/Range programs.

6. Wild horses, Wildlife and Dispersed Recreation - Rx is similiar to Rx 3 except emphasizes Wild free-roaming horse and burro Management in the areas of significant populations.

7. Further Planning - Rx to describe Further Planning Status of Current Program (No Action) - emphasis is to protect wilderness option in selected areas until a decision can be made.

8. Intensive Dispersed Recreation, Wildlife, and Current Developed Recreation - Rx is similiar to Rx 3 except it applies to heavily developed Recreation Areas on the Forest. Emphasis is dispersed Recreation and Wildlife while maintaining developed recreation at current levels.

9. Moderate Recreation, Wildlife, and Range - Rx describes Current Level Program. Maintenance level emphasis on Wildlife, Range, Developed and Dispersed Recreation.

10. Moderate Timber and Range - Rx emphasizes Timber/Range at moderate level of Management intensity.

11. Market Opportunities and Developed Recreation - This Rx emphasizes Developed Recreation, Range and Timber with primary emphasis on Recreation.

TABLE II-30 RESOURCES, YIELDS AND ACTIVITIES BETWEEN ALTERNATIVES
(TOTAL FOR 50 YEARS)

Program Element and Activity	Unit of Measure	A	B	C	D	E	P*	F	G	H
RECREATION										
Developed Recreation Use	Millions RVDs	28.0	51.6	30.4	57.8	31.0	59.6	31.4	61.5	31.5
Dispersed Recreation Use	Millions RVDs	97.5	127.7	108.2	124.8	87.0	11.57	97.0	71.6	126.4
Wilderness Use	Thousand RVDs	22.1	5.0	51.7	33.1	33.1	34.6	59.2	54.4	44.4
WILDERNESS										
New Wilderness acres	Thousand Acres	209.9	0	1113.6	592.7	306.1	180.5	1992.2	1348.0	1464.2
Wilderness percent	Percent	11.0	0.0	56.0	27.0	15.0	10.0	100.0	68.0	73.0
RECREATIONAL OPPORTUNITY SPECTRUM	Thousand Acres									
Primitive		147.3	135.4	147.4	87.4	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized		1378.1	423.1	1263.1	1078.1	1478.1	1409.1	1478.1	11288.0	1478.1
Semi-primitive motorized		1087.1	358.1	1152.1	1387.1	987.1	1056.1	987.1	947.0	987.1
Roaded Natural		536.3	2232.3	586.3	596.3	536.1	536.3	536.3	756.5	536.1
Rural		21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY OBJECTIVES	Thousand Acres									
Preservation		344.0	135.1	1248.7	727.8	441.2	355.6	2127.3	1483.1	1599.3
Retention		383.7	426.8	315.0	408.0	393.3	463.0	104.3	197.0	187.9
Partial Retention		1032.2	1203.1	629.4	926.6	968.4	1047.4	219.3	468.0	492.5
Modification		1172.4	1176.5	750.1	1016.9	1138.6	1086.4	501.8	789.0	663.0
Maximum Modification		238.5	230.4	228.5	232.4	235.2	228.0	230.4	237.6	229.0
WILDLIFE AND FISHERIES										
	Species numbers at the end of fifty years									
Wildlife Habitat Improvement 1	Thousand Acres	1.7	3.3	2.2	2.9	2.7	3.0	1.3	.7	3.2
Management Indicator Species										
Goshawk	Breeding Pair	60.0	56.0	70.0	57.0	59.0	66.0	80.0	72.0	80.0
Pine marten	Animals	850.0	800.0	1300.0	810.0	900.0	1000.0	1200.0	1200.0	1200.0
Piute cutthroat trout	Fish/stream/mile	260.0	320.0	500.0	500.0	280.0	500.0	400.0	300.0	400.0
Lahontan cutthroat trout	Fish/stream/mile	250.0	300.0	475.0	370.0	250.0	500.0	360.0	280.0	360.0
Williamson's sapsucker (pairs)	Animals	3100.0	2200.0	3800.0	2700.0	3100.0	3400.0	3800.0	4000.0	3800.0
Hairy woodpecker (pairs)	Animals	4500.0	3500.0	5600.0	4100.0	4500.0	5000.0	5800.0	5700.0	5800.0
Mule deer	Animals	29.9	32.6	31.7	33.3	29.0	33.6	30.3	26.4	30.3
Sage grouse	Animals	17.3	17.3	22.0	17.4	17.3	23.0	17.3	17.3	17.3
Yellow warbler (pairs)	Animals	5500.0	4600.0	6700.0	4600.0	4800.0	5600.0	6000.0	5600.0	6000.0
Palmer's chipmunk	Animals	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0	6600.0
Yellow-bellied sapsucker	Animals	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0
Macroinvertebrates	Biotic Cond. Index	70.0	50.0	100.0	51.0	55.0	75.0	90.0	70.0	90.0
Dispersed Wildlife Use										
General Forest Area	Thousands of WFUDs	11.4	39.2	21.9	27.8	19.2	27.7	18.2	12.5	33.3
Wilderness	Thousands of WFUDs	6.0	4.4	9.3	5.3	6.1	3.8	12.9	11.1	7.6
Improvement	Thousands of WFUDs	304.0	831.0	522.6	509.3	261.8	750.0	255.1	144.0	464.7

* Preferred Alternative

TABLE II-30 RESOURCES, YIELDS AND ACTIVITIES BETWEEN ALTERNATIVES
(TOTAL FOR 50 YEARS)

Program Element and Activity	Unit of Measure	A	B	C	D	E	P*	F	G	H
RANGE										
Domestic Livestock (Capacity)	Thousand AUMs	5082.0	5141.0	4822.0	5775.0	4963.0	5121.0	4843.0	5280.0	4855.0
Domestic Livestock (Permitted Use)	Thousand AUMs	4920.0	4978.0	4607.0	4905.0	4753.0	4931.0	4615.0	5108.0	4640.0
Wild horses (Permitted Use)	Thousand AUMs	212.0	375.0	335.3	270.0	231.0	255.0	276.0	251.0	288.0
Acres in Satisfactory Condition	Percent by 2030	90.0	95.0	90.0	95.0	90.0	95.0	90.0	95.0	90.0
TIMBER										
Program Sales Offered	Millions CF	46.0	93.2	15.5	69.5	0.0	34.7	0.0	69.5	0.0
	Millions BF	296.7	600.0	99.9	448.3	0.0	225.0	0.0	448.3	0.0
Reforestation	Thousand Acres	3.9	9.3	2.7	6.2	1.5	3.6	1.4	6.3	1.5
Timber Stand Improvement	Thousand Acres	6.3	4.1	6.7	5.9	7.2	6.3	6.7	3.8	7.1
Fuelwood	Millions CF	28.1	32.0	20.8	28.8	27.0	29.3	17.8	25.5	23.7
	Thousand Cords	311.3	355.7	231.4	319.1	299.7	325.8	198.1	238.1	263.1
Suitable Acres	Thousand Acres	48.3	82.8	65.6	79.2	0.0	70.6	0.0	62.2	0.0
Unsuitable Acres	Thousand Acres	84.1	49.6	66.8	53.2	132.4	61.8	132.4	70.2	132.4
WATER										
Meeting Water Quality Standards	Thousand Ac-ft	4660.0	4660.0	4660.0	4660.0	4660.0	4660.0	4660.0	4660.0	4660.0
PROTECTION										
Fuel Breaks and Fuel Treatment	Thousand Acres	38.7	68.0	53.8	54.4	39.2	61.5	55.0	61.6	41.9
Prescribed Burning for Range	Thousand Acres	24.0	28.0	20.0	22.0	18.0	24.0	20.0	28.0	28.0
Prescribed Burning for Wildlife	Thousand Acres	59.2	53.6	36.3	47.0	44.0	55.3	21.5	11.2	51.3
Person Caused fires	Numbers Fires	1210.0	1050.0	1200.0	960.0	1170.0	1130.0	1170.0	1090.0	1170.0
Acres Burned by Wildfire	Thousand Acres	210.0	28.2	117.0	116.7	75.0	28.2	116.7	116.7	116.7
Cost plus Net Value Change	Millions Dollars	75.0	68.0	70.0	70.0	70.0	68.0	70.0	70.0	70.0
MINERALS										
Leases	Number of Leases	3250.0	3200.0	3200.0	3200.0	3000.0	3250.0	3150.0	3150.0	3150.0
Operating Plans	Thousands of Plans	12.2	13.2	10.8	12.2	11.3	12.1	10.1	13.3	10.3
Acres Reclaimed	Thousand Acres	31.4	33.0	20.9	26.1	28.1	30.5	16.4	22.0	17.9
Acres Disturbed	Thousand Acres	33.1	34.7	23.2	27.5	33.1	32.1	18.2	23.2	19.9
High Mineral Potential in Wilderness Recommendation	Thousand Acres	149.0	0.0	356.3	233.3	149.0	40.4	775.6	421.5	469.6
HC&D										
Human Resources Program	Number of People	7150.0	7350.0	5400.0	7350.0	3550.0	5400.0	3550.0	7350.0	7350.0
LANDS										
Land Purchase, Acquisition and Exchange	Thousand Acres	18.0	40.0	18.0	60.0	13.0	35.0	30.0	30.0	40.0
Property Boundary Lines										
Location	Miles	442.0	1037.0	195.0	914.0	0.0	430.0		960.0	400.0
Maintenance	Miles	111.0	276.0	86.0	230.0	0.0	105.0		239.0	100.
Special Uses	Number of Permits									

* Preferred Alternative

1/ Average for fifty years

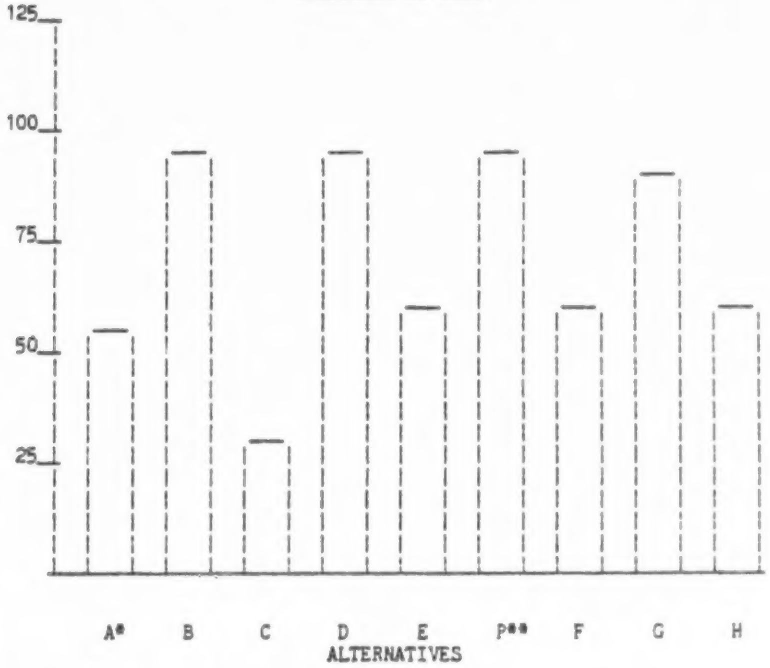
TABLE II-30 RESOURCES, YIELDS AND ACTIVITIES BETWEEN ALTERNATIVES
(TOTAL FOR 50 YEARS)

Program Element and Activity	Unit of Measure	A	B	C	D	E	B*	F	G	H
SOILS										
Soil and Water Improvement Acres	Acres	665.0	2870.0	1290.0	1225.0	525.0	1675.0	965.0	545.0	1475.0
Erosion Over Natural	Percent	5.0	23.0	3.0	13.0	0.0	5.0	0.0	12.0	0.0
FACILITIES										
Trail Const./Reconst.	Miles	0.0	66.0	17.4	24.6	0.0	40.9	14.2	18.0	24.4
Arterial Road Construction	Miles	50.9	146.1	8.8	116.4	0.0	36.5	0.0	136.9	0.0
Arterial Road Reconstruction	Miles	364.2	1556.3	888.3	1490.7	0.0	936.7	0.0	1489.9	1326.2
Timber Purch. Road Construction	Miles	104.2	232.5	13.9	115.0	0.0	59.9	0.0	194.1	0.0
Timber Purch. Road Reconstruction	Miles	152.1	257.0	60.1	181.8	0.0	139.9	0.0	181.3	0.0
BENEFITS	MILLIONS DOLLARS									
Recreation										
Developed		84.0	184.0	91.0	173.0	93.0	179.0	94.0	185.0	94.0
Dispered		292.0	416.0	325.0	374.0	261.0	334.6	291.0	215.0	379.0
Wilderness		177.0	40.0	414.0	265.0	318.0	276.8	474.0	434.0	356.0
Range		64.0	66.0	60.1	65.6	62.3	64.7	60.5	68.2	60.7
Timber		17.3	30.0	5.8	24.0	0.0	13.0	0.0	25.0	0.0
Wildlife (WFUDs)		350.0	581.0	653.0	655.0	506.0	638.0	631.0	474.0	723.0
Minerals										
COSTS	MILLIONS DOLLARS									
Total Forest Budget		222.3	332.3	241.1	304.5	158.5	281.1	164.2	247.8	250.3
Protection		30.1	46.0	35.8	35.0	36.9	45.1	34.8	34.2	31.6
General Administration		33.1	34.3	39.1	34.3	23.0	39.1	23.0	34.2	34.3
Total Roads		20.8	55.8	22.8	49.3	3.4	28.2	3.4	50.6	28.8
App. Fund Roads		16.2	46.6	21.3	42.4	3.4	24.9	3.4	43.5	28.9
Purchaser Credit Roads		4.6	9.2	1.5	6.9	.0	3.3	0.0	7.1	0.0
Recreation										
Developed Construction		0.0	8.2	0.0	5.2	0.4	7.5	0.3	8.5	0.3
Developed Reconstruction		0.0	1.5	0.0	2.9	0.0	1.8	0.2	1.6	0.1
Dispersed Trail Heads		0.0	0.4	0.2	0.2	0.0	0.3	0.2	0.1	0.2
Dispersed Trails		0.0	0.6	0.2	0.2	0.0	0.3	0.1	0.2	0.2
Non-Forest Service Costs (exc. roads)		20.2	27.8	16.9	27.8	12.2	21.1	12.3	27.7	27.7
Returns To Treasury		62.9	77.9	72.4	77.5	53.7	69.1	47.3	79.9	47.2

* Preferred Alternative

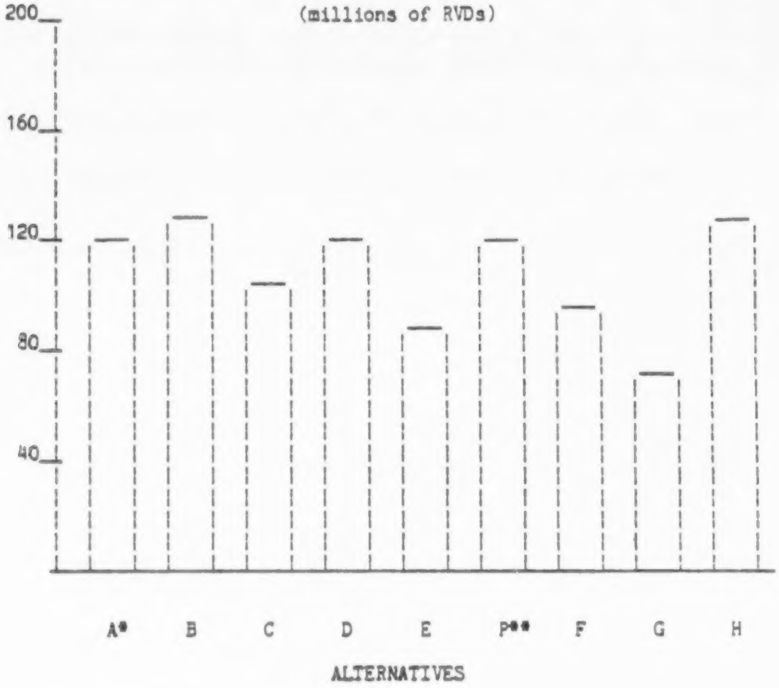
FIGURE II-1 DEVELOPED RECREATION OPPORTUNITIES BETWEEN ALTERNATIVES
50 YEAR TOTAL

(millions of RVDs)



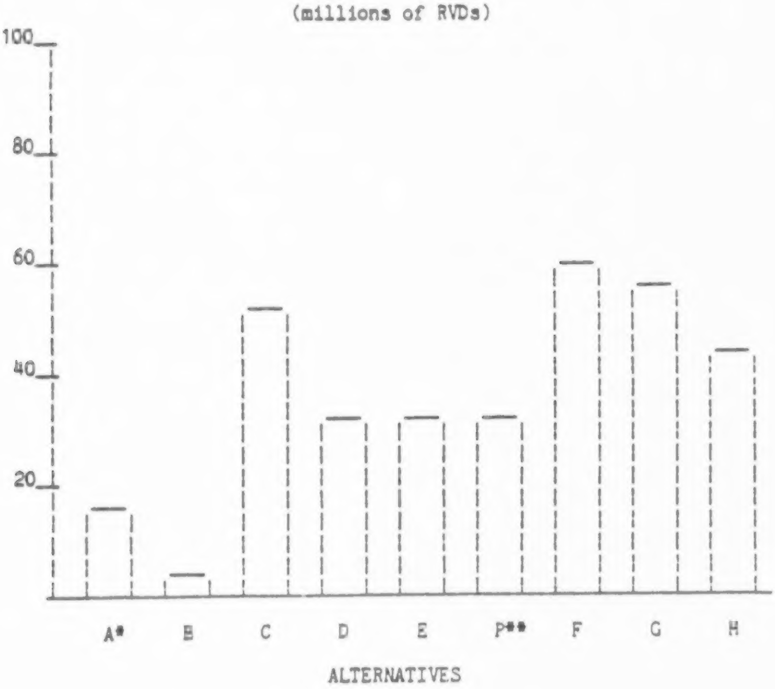
* Current Management ** Preferred alternative

FIGURE II-2 DISPERSED RECREATION OPPORTUNITIES BETWEEN ALTERNATIVES
50 YEAR TOTAL



* Current Management
** Preferred Alternative

FIGURE II-3 WILDERNESS RECREATION OPPORTUNITIES BETWEEN ALTERNATIVES
50 YEAR TOTAL



* Current Management
** Preferred Alternative

Table II-31 is a display of the construction/reconstruction of developed recreation sites and trail head construction by alternatives.

TABLE II-31 RECREATION CONSTRUCTION/RECONSTRUCTION PROJECTS

District	DEVELOPED RECREATION PROJECTS	A	B	C	D	E	P	F	G	H
	FIRST DECADE									
1	Faith Valley CG, constr.		x				x		x	
2	Lake CG, constr.		x		x		x		x	
2	Boulder CG, constr.		x		x		x		x	
1	Hope Valley CG, rehab.		x				x		x	
2	Lower Twin Lake CG, rehab.		x		x		x		x	
2	Honeymoon CG, rehab.		x		x		x		x	
2	Trumbull Lake CG water system, rehab.		x		x		x		x	
2	Sawmill CG, rehab.		x		x		x		x	
2	Bridgeport VIS improvement		x		x		x		x	
3	Kingston CG water system, rehab.		x		x		x	x	x	x
3	Big Creek CG water system, rehab.		x		x		x	x	x	x
	SECOND DECADE									
1	Twin Creeks complex, constr.		x				x		x	
2	Mono Village complex, constr.		x		x		x		x	
5	Kyle Canyon VIS site, constr.				x					
5	Kyle CG, rehab.						x			
5	McWilliams CG, rehab.						x			
5	Hilltop CG, rehab.						x			
5	Dolomite CG, rehab.						x			
	THIRD DECADE									
1	Centerville CG, constr.		x				x			
2	Crags CG, constr.		x		x		x			
3	Bob Scott CG, rehab.		x		x				x	
3	Kingston CG, rehab.		x		x		x	x	x	x
3	Big Creek CG, rehab.		x		x		x	x	x	x
4	Barley Creek CG, constr.		x		x	x			x	
4	Pine Creek CG, rehab.				x				x	
	FOURTH DECADE									
1	Forestdale CG, constr.		x				x		x	
2	Cloudburst CG, constr.		x		x		x		x	
3	Bade Flat CG, constr.		x		x				x	
3	Upper Big Creek CG, constr.		x		x		x	x	x	x
4	Shipley CG, constr.		x		x				x	
4	Mosquito Creek CG, constr.		x		x		x	x	x	x
2	Eagle Peak Ski Area, engr. support				x	x				
5	Portals CG, partial constr.				x					
3	Columbine CG, constr.				x				x	
3	Stoneberger CG, constr.				x				x	
3	San Juan CG, constr.				x	x			x	

District	FIFTH DECADE	A	B	C	D	E	P	F	G	H
1	Dog Valley CG, rehab.		x						x	
1	Lookout CG, rehab.		x		x				x	
1	Wolf Creek CG, constr.		x				x		x	
2	Castle Rock CG, constr.		x		x		x		x	
4	Jefferson Interpretive Site, constr.		x		x				x	
5	Tres Piedras CG, partial constr.				x					

DISPERSED RECREATION PROJECTS ALTERNATIVES

District	FIRST DECADE	A	B	C	D	E	P	F	G	H
1	PCT-Ophir/Mt. Rose Trail		x	x	x					x
1	Tahoe Meadows Snowp Parking & T.H.			x			x		x	x
1	PCT-E. Fork Carson Trail		x				x	x	x	
1	Burnside Lake T.H.		x				x	x	x	
1	Wold Creek T.H.		x				x	x	x	
1	Alpine Trail constr, 5 miles		x				x		x	
2	Virginia Lake T.H.		x		x		x	x	x	
2	Green Lake T.H.		x		x		x	x	x	
2	Twin Lake Trail, rehab.		x		x		x	x	x	
2	Walker Trail constr, 2 miles		x		x		x		x	
2	PCT snow Bypass, constr.		x							x
2	Fremont-Tower Lake Trail, reloctae		x							x
2	Koenig Lake Trail, constr		x							x
1	Hunter Creek Trail constr, .6 mile		x		x					x
1	Carson Range Trail constr, 1.5 mile		x		x					x
3	Washington T.H.		x				x	x		
3	Cow Canyon T.H.		x	x	x		x			
4	Toiyabe Crest Trial,reconst (Arc Dome)		x		x					
5	Giffith T.H.		x							
5	Desert View Handicap Trail		x							

	SECOND DECADE	A	B	C	D	E	P	F	G	H
1	Dog Valley Snowmoble trail, Constr			x	x		x	x		x
1	Dog Valley x-country Ski Trail,const			x			x	x		x
2	Beartrap Lake Trail,const		x							x
2	Little Walker Trail,constr		x							x
4	Mosquito Creek T.H.		x		x		x			
4	Barley Creek T.H.		x		x		x			
4	Cottonwood T.H.		x		x		x			
3	Birch Creek Trail and T.H., Constr		x	x			x			
5	Mt. Charleston Nat. Rec. Trail, extend		x							
3	Kingston Trail and T.H., Constr			x	x		x	x		x
4	North Twin T.H.			x	x		x			
4	South Twin T.H.				x		x			
5	Little Falls Interpretive Trail				x		x	x	x	x
3	Toiyable Crest Trail, extend						x			

District	THIRD DECADE	A	B	C	D	E	P	F	G	H
1	Rodriguez Flat T.H.		x	x	x			x		y
1	Highland T.H.			x	x			x		x
1	Alpine Snowmoble&x-country trail,const			x	x			x		x
1	Armstrong Pass Trail, constr			x	x		x	x	x	x
1	Trailhead (Carson Front), constr			x	x		x	x		x
2	Fryingpan-Murphy Creek Trail, reconstr		x		x		x			x
3	Clear Creek Trail, constr		x				x			
3	Columbine T.H.		x	x	x		x			
3	Carsley Creek Trail, constr		x				x			
4	Pine Creek T.H.		x	x			x			x
4	Meadow Creek T.H.		x				x	x		
4	Haystack Trail, reconstr		x	x			x			
4	Moores Canyon T.H.		x	x	x		x			
5	Clark Canyon Trail, Constr		x	x	x		x	x	x	x
5	Clark Canyon T.H.		x							
4	Table Mt. Trails, Reconstr.,(.4 mile)				x					
3	South Monitor Allotment Trails,recont						x	x		

	FOURTH DECADE	A	B	C	D	E	P	F	G	H
5	Cathedral Rock T.H.		x							
5	Macks Canyon T.H.		x							

	FIFTH DECADE	A	B	C	D	E	P	F	G	H
5	Pine Canyon T.H.		x							
5	Mack Canyon Trail		x							
5	Pine Canyon Trail		x							

The Forest Service is using the Recreational Opportunity Spectrum (ROS) to determine the availablility of different recreational experiences. Five ROS classes are present in all alternatives: primitive, semi-primitive motorized, semi-primitive non-motorized, roaded natural and rural. These ROS classes are based on six criteria: remoteness, size, evidence of humans, user density and management regimentation & noticeability.

Table II-32 lists the acreage and dispersed recreational opportunities (for the fifty year RPA planning horizon) for the nine alternatives. The acreage and opportunities in this chart include those in the Hoover Wilderness and any of the roadless areas recommended for wilderness designation within the respective alternatives.

TABLE II-32 DISPERSED RECREATION OPPORTUNTIES BETWEEN ALTERNATIVES
END OF THE FIFTY YEAR PERIOD

Alternative	ROS CLASSES									
	Primitive		Semi-primitive Non-Motorized		Semi-primitive Motorized		Roaded Natural		Rural	
	M Acres	Rvds***	M Acres	RVDs***	M Acres	RVDs***	M Acres	RVDs***	M Acres	RVDs***
A*	147.4	3.66	1,373.1	14.64	1,087.1	14.65	536.3	91.50	21.3	58.60
B	135.4	4.39	423.1	17.38	358.1	17.37	2,232.3	108.60	21.3	69.50
C	147.4	2.00	1,263.1	20.00	1,152.1	14.69	586.3	72.00	21.3	54.30
D	37.4	25.00	1,079.1	20.00	1,337.1	15.00	596.3	108.2	21.3	70.0
E	135.0	3.70	621.0	12.60	468.1	14.70	1,924.8	93.40	21.3	59.60
P**	147.4	4.70	1,409.1	13.75	1,056.1	18.90	536.3	116.00	21.3	75.50
F	147.4	6.00	1,479.1	25.00	987.1	20.00	536.3	88.66	21.3	58.00
G	147.4	5.00	1,289.0	20.00	947.0	15.00	756.5	102.90	21.3	58.00
H	147.4	6.00	1,479.1	25.00	987.1	20.00	536.3	88.66	21.3	58.00

* Current Managment
** Perferred Alternative
*** Millions RVDs

Table II-33 show the acres in the different visual quality categories.

TABLE II-33 DISPERSED RECREATION VISUAL QUALITY OBJECTIVES BETWEEN ALTERNATIVES
END OF THE FIFTY YEAR PERIOD

	VISUAL QUALITY OBJECTIVES (M ACRES)				
Alternative	Preservation	Retention	Partial Retention	Modification	Maximum Modification
A*	344.9	383.7	1,032.2	1,172.4	238.5
B	135.1	426.9	1,203.1	1,176.5	230.4
C	1,243.7	315.0	629.4	750.1	229.5
D	727.3	408.0	926.6	1,016.9	232.4
E	441.2	393.3	968.4	1,138.6	235.2
P**	346.0	463.0	1,047.4	1,086.7	223.0
F	2,127.3	104.7	219.3	501.3	230.4
G	1,483.1	197.0	468.0	789.0	237.6
H	1,599.3	187.9	492.5	663.0	229.0

* Current Management
** Perferred Alternative
This table includes areas of classified wilderness and recommended wilderness preservation

COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 1

A Alternative A would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be reconstruction of existing sites within this alternative. See Table II-31 for the location and period of new trail head construction/reconstruction. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres. This alternative does not meet the demand for developed site use.

B Alternative B would offer a variety of recreational experiences stressing developed recreation and dispersed recreation. There will be construction of seventeen new campgrounds and reconstruction of existing sites within this alternative. This total construction/reconstruction will supply an additional 5,855 PAOTs. In addition to the developed recreation construction,

construction/reconstruction of 66 miles of trails will enhance the dispersed recreation resource. See Table II-31 for the period and location of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres.

C Alternative C would offer a variety of recreational experiences mainly wilderness experiences. There will be no new construction or reconstruction of developed recreation sites. Construction/reconstruction of 17.4 miles of new dispersed recreation trails will enhance the dispersed recreation resource. See Table II-31 for trail-head and trail construction/reconstruction period and location. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres. This alternative does not meet the demand for developed site use.

D Alternative D would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be construction of fourteen new campgrounds and reconstruction of existing developed sites. This total construction/reconstruction will supply an additional 5,764 PAOTS. In addition to the developed recreation construction, construction/reconstruction of 24.6 miles of trails will enhance the dispersed recreation resource. See Table II-31 for period and location of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres.

E Alternative E would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be construction of four new campgrounds but not until the third and and fourth decade, and some reconstruction of existing developed sites. This alternative does not meet the demand for developed site use. This total construction/reconstruction will supply an additional 1,271 PAOTS. There will be no trail construction/reconstruction in alternative E. See Table II-31 for period and location of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres.

P Alternative P would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be construction of twelve new campgrounds and reconstruction of existing sites within this alternative. This total construction/reconstruction will supply an additional 5,150 PAOTs. In addition to the developed recreation construction,

construction/reconstruction of 40.9 miles of trails will enhance the dispersed recreation resource. See Table II-31 for period and location of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres.

F Alternative F would offer a variety of recreational experiences stressing wilderness and some dispersed recreation. There will be construction of three new campgrounds and reconstruction of some existing sites within this alternative. Construction/reconstruction of 14.2 miles of trails will enhance the dispersed recreation resource. This total construction/reconstruction will supply an additional 440 PAOT's. See Table II-31 for the location and period for all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres. This alternative does not meet the demand for developed site use.

G Alternative G would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be construction of thirteen new campgrounds and reconstruction of existing sites within this alternative. This total construction/reconstruction will supply an additional 6,175 PAOTs. In addition to the developed recreation construction, construction/reconstruction of 18.0 miles of trails will enhance the dispersed recreation resource. See Table II-31 for the location and the period of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to Table II-32 on the acreage distribution of the specific ROS acres.

H Alternative H would offer a variety of recreational experiences ranging from wilderness to developed recreation. There will be construction of two new campgrounds and reconstruction of existing sites. This total construction/reconstruction will supply an additional 440 PAOTS. In addition to the developed recreation construction, construction/reconstruction of 24.4 miles of trails will enhance the dispersed recreation resource. See Table II- for the location and period of all new recreation construction projects. The Toiyabe National Forest contains five Recreation Opportunity Spectrum (ROS) settings: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural. Refer to table II-32 on the acreage distribution of the specific ROS acres. This alternative does not meet the demand for developed site use.

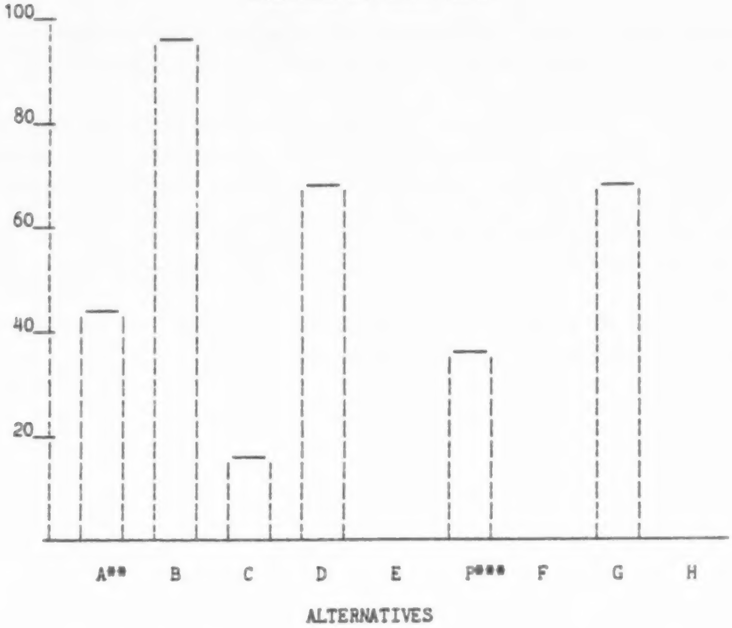
PLANNING ISSUE 2 :

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION, (B) PINYON-JUNIPER TYPE, AND (C) LAS VEGAS (MT. CHARLESTON)?

Timber production is a component of management prescriptions on the Sierra's. Within these prescriptions, there is an array of management practices designed to produce different intensities of timber production. The mixture of management prescriptions within any alternative determines the intensity of timber management, the volume of timber to be produced and the amount of reforestation, and the amount of timber stand improvement.

Figure II-4 thru II-6 displays the amount of timber volume harvested, acres reforested and volume of fuelwood harvested.

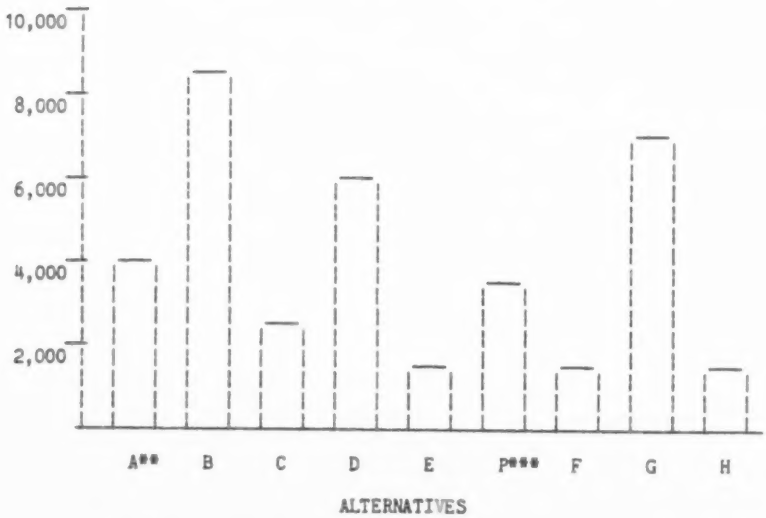
FIGURE II-4 COMPARISON OF TIMBER VOLUME OFFERED BETWEEN ALTERNATIVES
50 YEAR TOTAL
(millions of cubic feet)



* Current Management
** Preferred Alternative

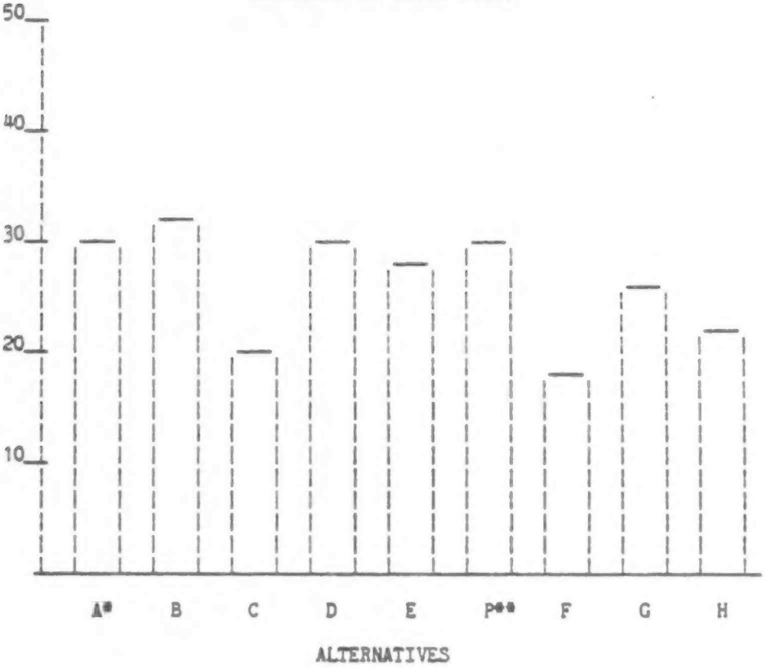
FIGURE II-5 COMPARISON OF REFORESTATION ACREAGE BETWEEN ALTERNATIVES*
50 YEAR TOTAL

(Acres)



* Includes Backlog
** Current Management
*** Preferred Alternative

FIGURE II-6 COMPARISON OF FUELWOOD VOLUME BETWEEN ALTERNATIVES
50 YEAR TOTAL
(millions of cubic feet)



* Current Management
** Preferred Alternative

COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 2

A Alternative A provides for an annual long term sustained yield capacity of 1.06 million cubic feet (attained at the 20th period). Timber will come mainly from Dog Valley, Walker and Alpine County. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Continued timber harvesting of the Mixed Conifer and Jeffrey Pine working groups will result in a decrease of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.

B Alternative B provides for an annual long term sustained yield capacity of 2.10 million cubic feet (attained at the 20th period). Timber will come mainly from Dog Valley, Walker, Alpine Co. and the Carson Front. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Increased timber harvesting over the current situation of the Mixed Conifer, Jeffrey pine and Lodgepole pine working groups will result in a corresponding decrease of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.

C Alternative C provides for an annual long term sustained yield capacity of 1.41 million cubic feet (attained at the 20th period). Timber will come mainly from Walker and the Carson Front. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Decreased timber harvesting over the current situation of the Mixed Conifer, Jeffrey pine and lodgepole pine working groups will result in a corresponding increase of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.

D Alternative D provides for an annual long term sustained yield capacity of 1.83 cubic feet (attained at the 20th period). Timber will come mainly from Dog Valley, Alpine Co. and the Carson Front. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Increased timber harvesting over the current situation of the Mixed Conifer and Jeffrey pine will result in a corresponding decrease of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.

E Alternative E provides for no timber harvesting. No timber harvesting in any of the working groups will result in an increase of acres available for old growth.

P	Alternative P provides for an annual long term sustained yield capacity of 1.54 million cubic feet (attained at the 20th period). Timber will come mainly from Dog Valley, Walker, Alpine Co. and the Carson Front. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Decreased timber harvesting over the current situation of the Mixed Conifer and Jeffrey Pine working groups will result in a corresponding decrease of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.
F	Alternative F provides for no timber harvesting. No timber harvesting in any of the working groups will result in an increase of acres available for old growth habitat.
G	Alternative G provides for an annual long term sustained yield capacity of 1.50 million cubic feet (attained at the 20th period). Timber will come mainly from Dog Valley and Alpine Co. Even-age management would be the predominant silvicultural system used, however, uneven-age management would be used on a case by case basis to meet special management objectives. Increased timber harvesting over the current situation of all working groups will result in a corresponding decrease of acres available for old growth habitat. Thinnings would be scheduled by silviculturalists to maintain optimum growing conditions.
H	Alternative H provides for no timber harvesting. No timber harvesting in any of the working groups will result in an increase of acres available for old growth habitat.

PLANNING ISSUE 3 :

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

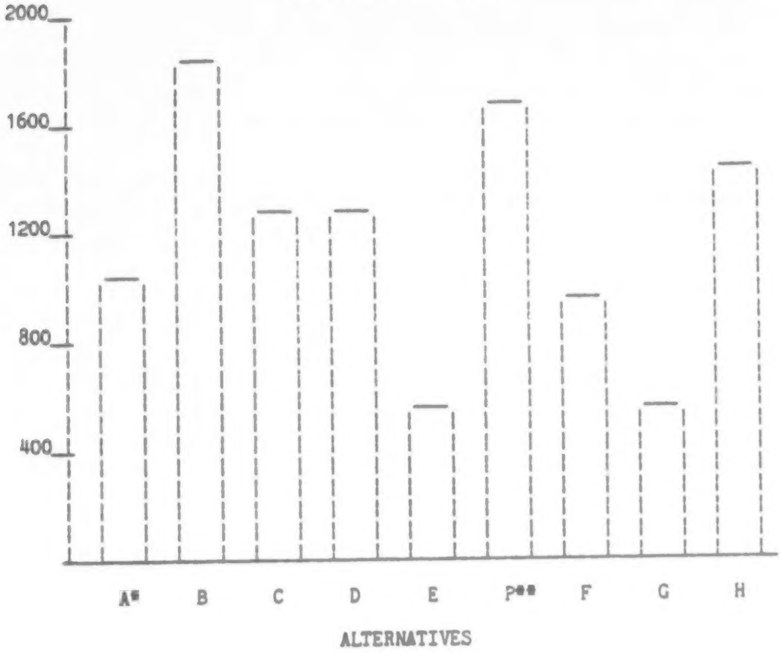
(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Figure II-7 displays the soil and water improvement acres.

FIGURE II-7 COMPARISON OF SOIL AND WATER IMPROVEMENT ACRES BETWEEN ALTERNATIVES
50 YEAR TOTAL

(thousands of acres)



* Current Management
** Preferred Alternative

COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 3

Within all alternatives, riparian areas including floodplains and wetlands would be protected by avoiding or mitigating adverse impacts. All management programs would be designed to avoid direct and indirect support of floodplain development and construction in wetlands to the extent practicable. The non-degradation of water quality and soil productivity are minimum management requirements and occur in all the alternatives.

The following are differences that will occur on riparian areas with regards to range uses and wildlife needs.

A Increased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will increase.

B Slight increased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will decrease . This will result from range management aimed at bringing 10% more into satisfactory condition (57,465 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

C Decreased grazing use of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

D The same grazing use as current of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

E Decreased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

P There will be a slight decreased grazing use of the riparian areas in this alternative. Livestock and wildlife range use conflicts will decrease. This will result from range management aimed at bringing 10% more into satisfactory condition (57,465 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current sistuation that would improve riparian area conditions.

F Decreased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will remain the same as current. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas). A decrease in direct wildlife habitat improvement acres over the current situation would cause increased use of the riparian areas by some wildlife species.

G Increased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will increase slightly. Additional acres that will be brought up to satisfactory condition by 2030 (approximately 5% over the current situation) will reduce some conflicts, however, increased grazing and a decrease in direct wildlife habitat improvement acres over current will result in an overall increase of conflicts.

H Decreased grazing of the riparian areas will occur in this alternative. Livestock and wildlife range use conflicts will decrease. This will result from range management aimed at bringing 5% more into satisfactory condition (28,180 acres) over the minimum management situation (approximately 25% of these acres will be in riparian areas) and an increase in direct wildlife habitat improvement acres over the current situation that would improve riparian area conditions.

PLANNING ISSUE 4 :

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

Figures II-8 thru II-9 display the domestic livestock permitted use and the wild free-roaming horse and burro permitted use.

FIGURE II-8 PERMITTED USE OF DOMESTIC LIVESTOCK BETWEEN ALTERNATIVES
50 YEAR TOTAL

(thousands of AUMs)

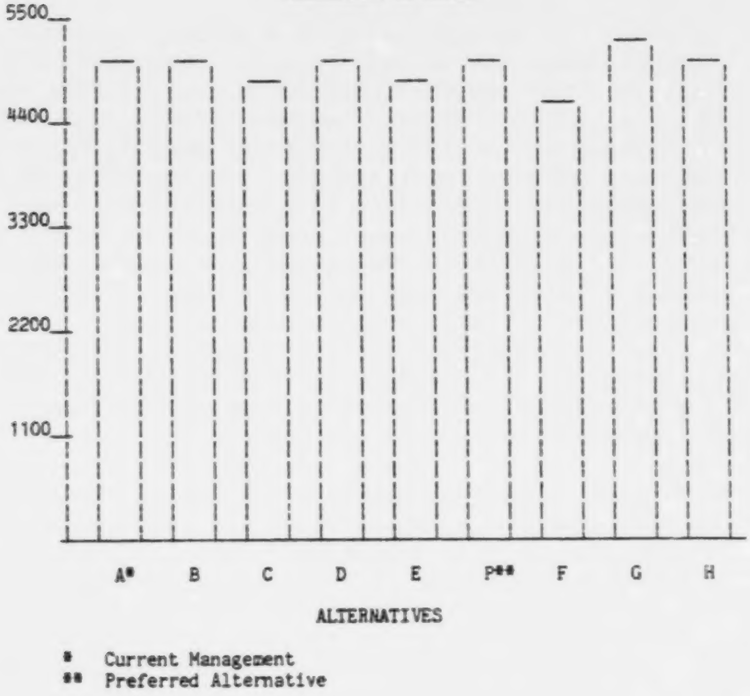
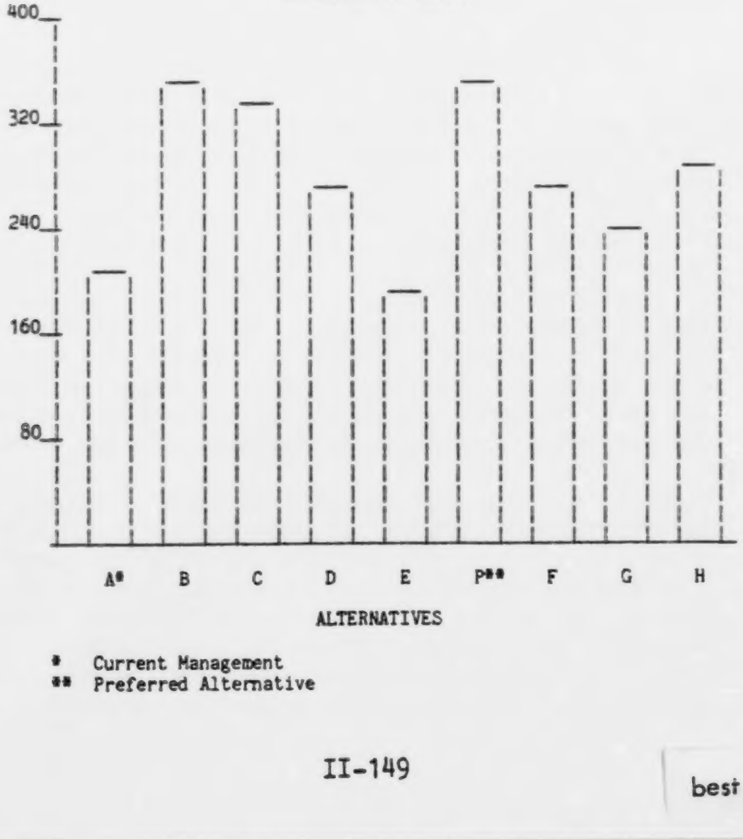


FIGURE II-9 WILD FREE-ROAMING HORSES AND BURROS PERMITTED USE BETWEEN ALTERNATIVES
50 YEAR TOTAL

(thousand of AUMs)



best copy available

COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 4

A Within the fifty year planning horizon of Alternative A, domestic livestock AUM will remain constant at 984,000 AUMs from the first period to the fifth period. Wild free-roaming horse and burro AUMs will decrease from 43,000 AUMs in the first period to 42,250 in the fifth period, for a total of 212,000 AUMs over the fifty year period. Ninty percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 40 percent of the acres, while intensive management would total 60 percent. Because of the range demands of domestic livestock, the riparian areas will come under increased use. Decreased funding of range projects will allow less coordination of uses in riparian areas. The acres of direct wildlife habitat improvement over the current situation would maintain riparian area conditions.

B Within the fifty year planning horizon of Alternative B, domestic livestock AUMs increase from 1,000,000 AUMs in the first period to 1,007,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant from 75,000 AUMs in the first period to 75,000 in the fifth period. Ninety-five percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 30 percent of the acres, while intensive management would total 70 percent. Because of the increase in range demands of domestic livestock, the riparian areas will come under increased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

C Within the fifty year planning horizon of Alternative C, domestic livestock AUMs decrease from 954,420 AUMs in the first period to 917,080 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will increase from 63,740 AUMs in the first period to 68,000 in the fifth period. Ninety percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 50 percent of the acres, while intensive management would total 50 percent. Because of the decrease in range demands of domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

D Within the fifty year planning horizon of Alternative D, domestic livestock AUMs increase from 959,000 AUMs in the first period to 1,000,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant from 54,000 AUMs in the first period to the fifth period. Ninety percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 45 percent of the acres, while intensive management would total

55 percent. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

E Within the fifty year planning horizon of Alternative E, domestic livestock AUMs increase from 947,320 AUMs in the first period to 949,990 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will decrease from 46,780 AUMs in the first period to 45,690 in the fifth period. Ninety percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 55 percent of the acres, while intensive management would total 45 percent. Because of the decreased grazing by domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

P Within the fifty year planning horizon of Alternative P, domestic livestock AUMs increase from 980,000 AUMs in the first period to 990,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant at 51,000 AUMs. Ninety-five percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 40 percent of the acres, while intensive management would total 60 percent. Because of the slight decrease in range demands of domestic livestock the riparian areas will come under slightly decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

F Within the fifty year planning horizon of Alternative F, domestic livestock AUMs will decrease from 940,000 AUM's in the first period to 923,000 AUM's in the fifth period. Wild free-roaming horse and burro AUMs will increase from 52,750 AUMs in the first period to 55,850 in the fifth period. Ninety percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 50 percent of the acres, while intensive management would total 50 percent. Because of the decreased grazing by domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Decreased acres of direct wildlife habitat improvement over the current situation would increase pressure on riparian areas for some wildlife species.

G Within the fifty year planning horizon of Alternative G, domestic livestock AUMs increase from 962,000 AUMs in the first period to 1,040,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will remain constant from 50,000 AUM's in the first to the fifth period. Ninety-five percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 30 percent of the acres, while intensive management would total 70 percent.

H Within the fifty year planning horizon of Alternative H, domestic livestock AUMs decrease from 940,000 AUMs in the first period to 925,000 AUMs in the fifth period. Wild free-roaming horse and burro AUMs will will remain constant from 58,000 AUMs in the first period to 58,000 in the fifth period. Ninety percent of the rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 45 percent of the acres, while intensive management would total 55 percent. Because of decreased grazing by domestic livestock, the riparian areas will come under decreased use. Increased funding of range projects will allow better coordination of uses in riparian areas. Increased acres of direct wildlife habitat improvement over the current situation would improve riparian area conditions.

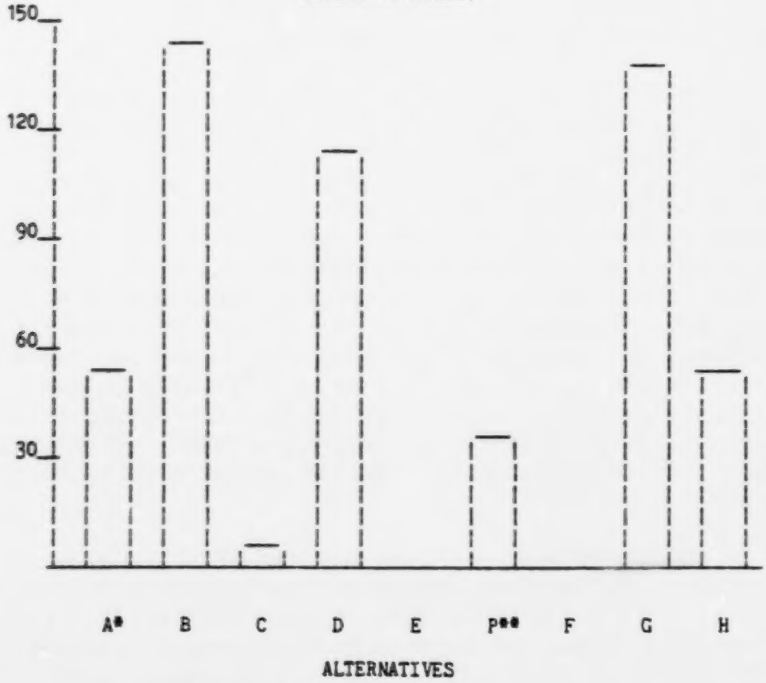
PLANNING ISSUE 5 :

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

Figures II-10 and II-11 display total local, arterial, and collector miles of road construction for fifty years.

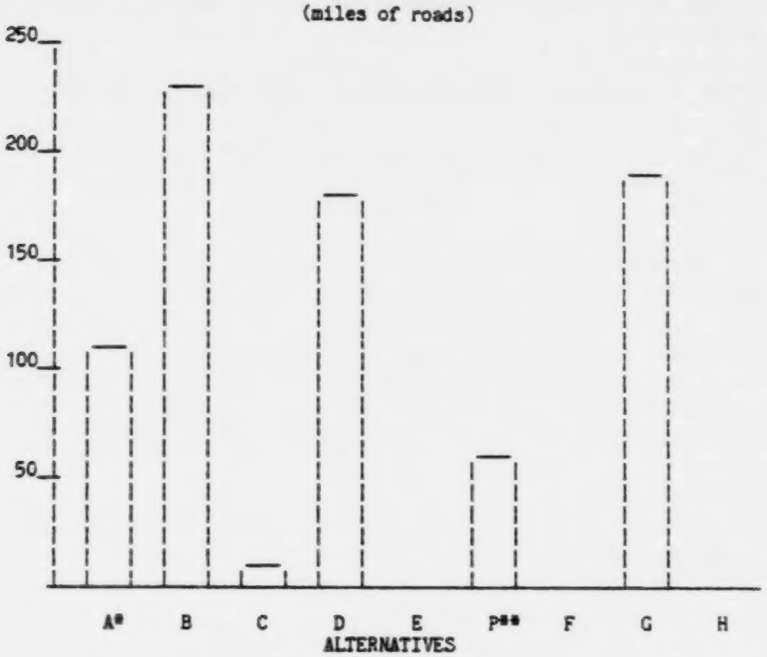
FIGURE II-10 TOTAL ARTERIAL AND COLLECTOR ROAD CONSTRUCTION BETWEEN ALTERNATIVES
50 YEAR TOTAL

(miles of roads)



* Current Management
** Preferred Alternative

FIGURE II-11 TOTAL LOCAL MILE CONSTRUCTED BETWEEN ALTERNATIVES *
50 YEAR TOTAL



* Current Management ** Preferred Alternative

Alternatives E and F contain no road construction supporting the timber management program. Within all other alternatives, road location is dictated by resource management requirements and physical limitations such as topography, environmental factors and economics. None of the alternatives have any road construction within the existing Hoover Wilderness, the Mokelumne Wilderness Addition and the Carson Iceberg Wilderness, as well as, areas surrounding the east fork of the Carson, the east and west forks of the Walker rivers and any roadless area recommended as wilderness designation within that alternative. Design criteria used for roads consist of resource management objectives, environmental constraints, safety, physical factors, traffic, traffic service levels, vehicle characteristics, users and economics.

PLANNING ISSUE 6 :

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHT-OF-WAY) ARE NEEDED AND WHERE?

All alternatives contain a land adjustment directive which permits the adjustment of National Forest system lands to accommodate the goals and objectives of the alternative.

Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would permit better management of all resources as the Forest Service has better control over consolidated blocks of land. Land consolidation would also reduce impacts from adjacent landowners.

All alternatives provide for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line (East of Mono Lake)

All alternatives provide a window for possible new utilities north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line, Luther Pass and Armstrong Pass. Specific project location would be handled through the Environment Analysis process if and when a project is proposed.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors.

See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

The present National Forest ownership patterns create some limits on resource management.

PLANNING ISSUE 7 :

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

Figures II-12 thru II-14 Display the mineral operating plans, acres disturbed and acres reclaimed over a fifty year period.

FIGURE II-12 OPERATING PLANS BETWEEN ALTERNATIVES
50 YEAR TOTAL

(number of plans)

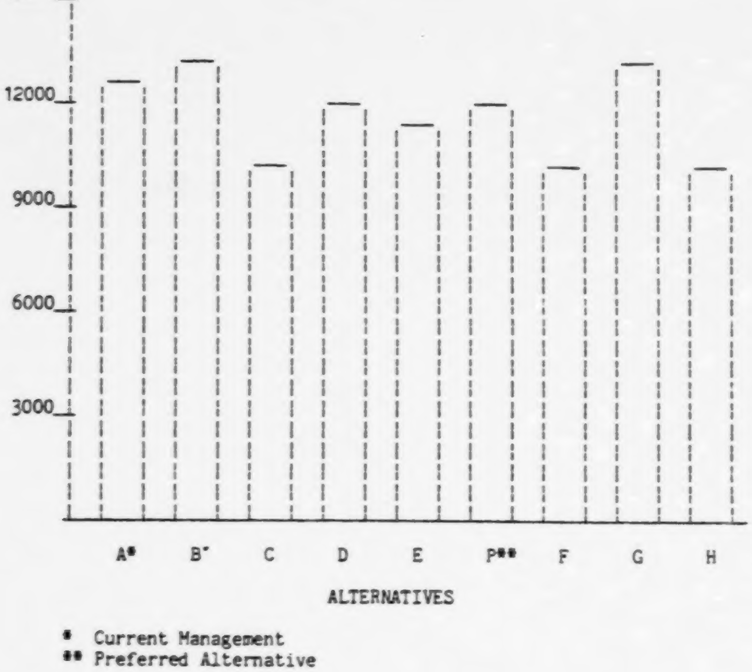


FIGURE II-13 ACRES DISTURBED BETWEEN ALTERNATIVES
50 YEAR TOTAL

(thousand of acres)

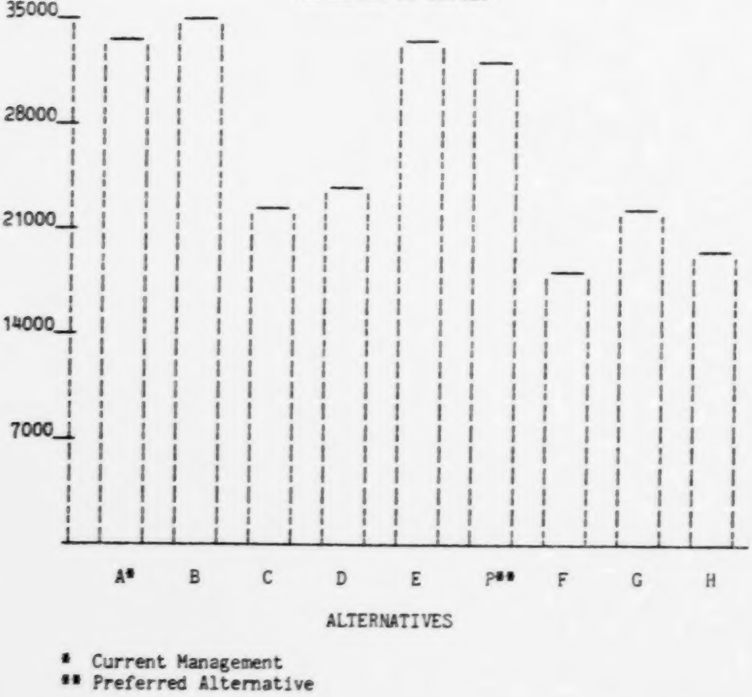
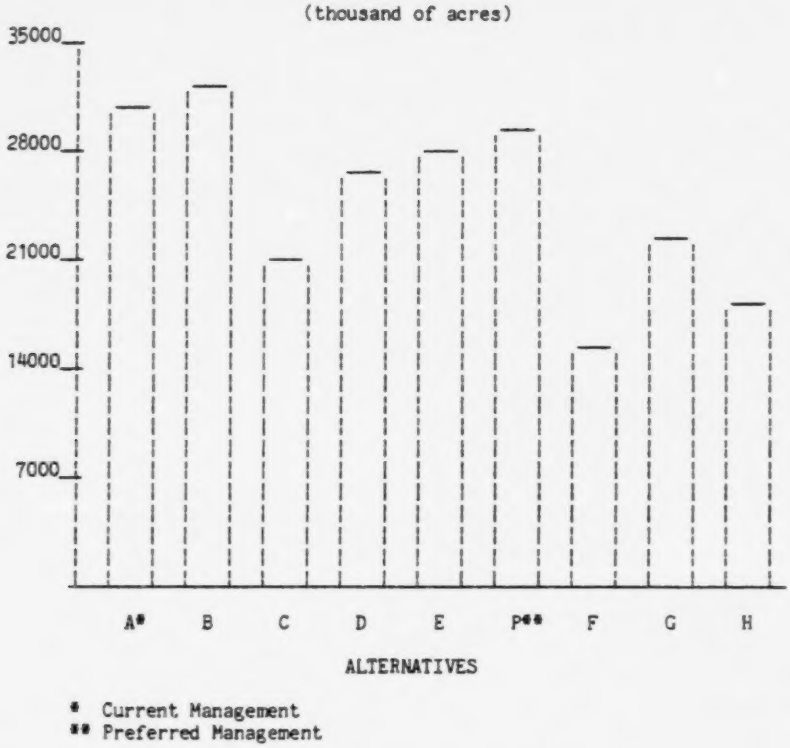


FIGURE II-14 ACRES RECLAIMED BETWEEN ALTERNATIVES
50 YEAR TOTAL



COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 7

A Alternative A will provide for 12,210 operating plans. Funding in this alternative is the same as is presently being done for the minerals program and will result in similar management and administration level in the Supervisor's office and at the district level. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resource values. There will be medium response to the 12,210 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

B Alternative B will provide for 13,200 operating plans. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. The level of the minerals program in this alternative will be high and designed to develop the mineral resources to their potential. There will be accelerated response to the 13,200 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

C Alternative C will provide for 10,750 operating plans. Decreased funding in this alternative for the minerals program will result in decreased management and administration level in the Supervisor's office and at the district level. The level of the minerals program in this alternative will be moderate and disigned to develop the mineral resources to their potential. There will be moderate response to the 10,750 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

D Alternative D will provide for 12,180 operating plans. Funding in this alternative is the same as is presently being done for the minerals program and will result in similar management and administration level in the Supervisor's office and at the district level. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resources. There will be moderate response to the 12,180 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

E Alternative E will provide for 11,340 operating plans. A slight reduction in funding in this alternative for the minerals program will result in a slight reduction in management and administration level in the Supervisor's office and at the district level. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting surface resource values. There will be moderate response to the 11,340 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

P Alternative P will provide for 12,069 operating plans. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. The level of the minerals program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resources. There will be accelerated response to the 12,069 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

F Alternative F will provide for 10,290 operating plans. Decreased funding in this alternative for the minerals program will result in decreased management and administration level in the Supervisor's office and at the district level. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting surface resource values. There will be a moderate response to the 10,290 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

G Alternative G will provide for 13,300 operating plans. Increased funding in this alternative for the minerals program will result in increased management and administration level in the Supervisor's office and at the district level. The level of the minerals program in this alternative will be medium high and designed to develop the mineral resources to their potential. There will be accelerated response to the 13,300 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

H Alternative H will provide for 10,295 operating plans. Funding in this alternative is the same as is presently being done for the minerals program and will result in the same management and administration level in the Supervisor's office and at the district level. The level of the mineral program in this alternative will be moderate and designed to develop the mineral resources while protecting the surface resources. There will be moderate response to the 10,295 operating plans. Forest-wide standards and guidelines are provided for the management of the oil, gas and mineral resources.

PLANNING ISSUE 8 :

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

The alternatives contain a mixture of recommendations for the roadless areas on the Toiyabe National Forest. Table II-34 shows the roadless areas going to recommended wilderness. Figure II-15 shows the various percentages of roadless areas being recommended for wilderness in each alternative.

FIGURE II-15 WILDERNESS ACREAGE PERCENT BETWEEN ALTERNATIVES

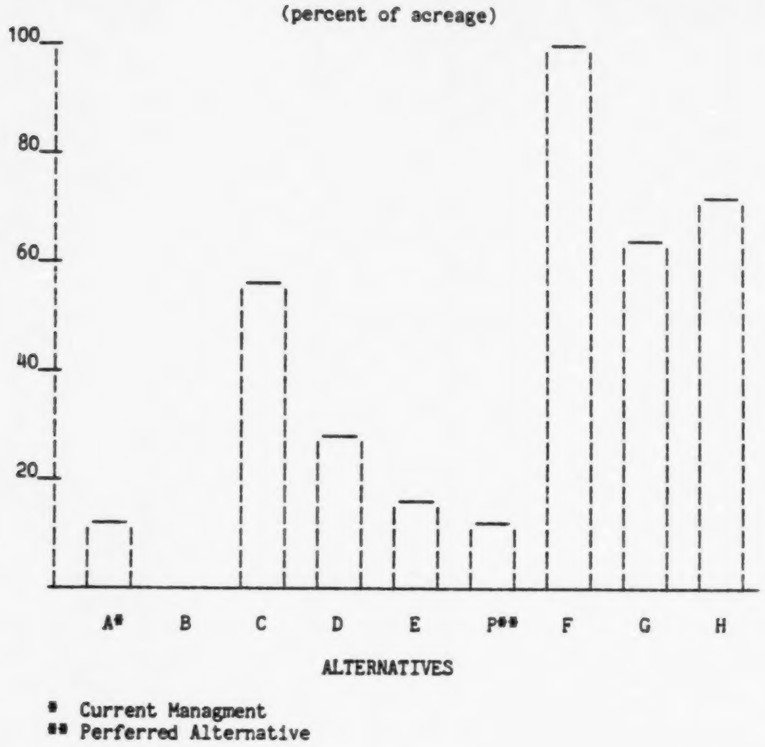


TABLE II-34

WILDERNESS PROPOSALS - M ACRES

CALIFORNIA

	Max Wilderness Benchmark	Alt A	Alt B	Alt C	Alt D	Alt E	Alt P	Alt F	Alt G	Alt H	Min Wilderness Benchmark
Hoover Furtner Planning Area 2/	54132.	Further Plan		54.1				54.1	54.1		0
Hoover Planning Area 1/	49272.	Furtner Plan		49.2	49.2	49.2	49.2	49.2	49.2	5/ 4.3	0
Carson Iceberg Planning Area 1/	9690.	Further Plan		9.7	9.7		4.9	9.7	9.7	9.7	0
Other Roadless Areas in California 3/	107,283										0

CALIFORNIA & NEVADA

	Max Wilderness Benchmark	Alt A	Alt B	Alt C	Alt D	Alt E	Alt P	Alt F	Alt G	Alt H	Min Wilderness Benchmark
Sweetwater Further Planning Area 2/ & 4/ CA-40000 ac NV-8700 ac	68112.	Further Plan		68.1				68.1	68.1		
Long 3/ CA-3388 ac NV-8700 ac	12088.					8.7		8.7			

CALIFORNIA WILDERNESS ACT OF 1984

1/ - Congressional Study Area (CWA)
2/ - Further Planning (CWA)
3/ - Non-Wilderness (CWP)
4/ - Further Planning (RARE II)
5/ - Leavitt Lake Area

TABLE II-34

WILDERNESS PROPOSALS - M ACRES

NEVADA	Max Wilderness Benchmark	Alt A	Alt B	Alt C	Alt D	Alt E	Alt P	Alt F	Alt G	Alt H	Min Wilderness Benchmark
Wellington Hills	20618.							20.6			0
Desert Creek Peak	11414.							11.4			0
Lobdell	29071.							29.0			0
Wiley	6295.							6.2			0
Bald Mountain	69279.			69.2				69.2	69.2		0
Excelsior	115429.	115.4		115.4	115.4	115.4		115.4	115.4		0
Hunter Creek	5300.			5.3				5.3	5.3		0
Carson Range	14538.			14.5				14.5	14.5		0
Sugar Loaf	8932.							8.9			0
Buller	9478.							9.4			0
Mt. Hicks	13948.							13.9			0
Long Valley	48469.			48.4				48.4	48.4		0

TABLE II-34
WILDERNESS PROPOSALS - M ACRES

	Max Wilderness Benchmark	Alt A	Alt B	Alt C	Alt D	Alt E	Alt P	Alt F	Alt G	Alt H	Min Wilderness Benchmark
Marble Falls	10375.							10.4		10.4	0
Sherman Peak	7880.							7.8		7.8	0
Paradise	22235.							22.2		22.2	0
Elkhorn	6555.							6.6		6.6	0
North Shoshone	37480.							37.5		37.5	0
South Shoshone	24825.							24.8		24.8	0
Mt. Ardivey	36875.			36.8	36.8			36.8	36.8	36.8	0
Willow Creek	7025.							7.0		7.0	0
Bob Scott	10100.							10.1		10.1	0
Rada Creek	9475.							9.4		9.4	0
Bunker Hill	32105.			32.1	32.1			32.1	32.1	32.1	0
Toiyabe Range Peak	108320.			108.3	108.3			108.3	108.3	108.3	0
Marysville Creek	8260.							8.3		8.3	0

TABLE II-34

WILDERNESS PROPOSALS - M ACRES

NEVADA	Max Wilderness Benchmark	Alt A	Alt B	Alt C	Alt D	Alt E	Alt P	Alt F	Alt G	Alt H	Min Wilderness Benchmark
Southern Toiyabe (Arc Dome)	227115.	94.4		94.4		94.4	94.4	227.1	227.1	227.1	0
Bank Spring	17024.							17.0		17.0	0
Toquima Cave	42605.							42.6		42.6	0
Clipper Gap	10480.							10.5		10.5	0
Sams Canyon	10905.							10.9		10.9	0
Mud Springs-Boulder	25345.							25.3		25.3	0
Iron Springs-Wildcat Peak	57230.							57.2		57.2	0
North Moores Creek	12635.							12.6		12.6	0
Mt. Jefferson	68570.			68.6	68.6		31.01/	68.6	68.6	68.6	0
Mariposa	9110.							9.1		9.1	0
Silver Creek	28435.							28.4		28.4	0
Sage Hen	9030.							9.0		9.0	0
Fitzpatrick Spring	13750.							13.7		13.7	0

1/ High Elevation Core area

TABLE II-34

WILDERNESS PROPOSALS - M ACRES

	Max Wilderness	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E	Alt. P	Alt. E	Alt. G	Alt. H	Min Wilderness
Antelope Peak	61425.			61.4	61.4			61.4	61.4	61.4	0
Brock Canyon	27365.							27.4		27.4	0
Bald Mountain (Central Nevada)	23500.							23.5		23.5	0
Horse Heaven	101740.							101.7	101.7	101.7	0
Table Mountain	166920.			166.9				166.9	166.9	166.9	0
Rock Canyon	24265.							24.3		24.3	0
Big White Sage	12265.							12.3		12.3	0
Big Ten	9725.							8.7		8.7	0
Georges Canyon	72835.			72.8	72.8			72.8	72.8	72.8	0
Antelope	5775.							5.8		5.8	0
Saulsbury	20335.							20.3		20.3	0
Warm Springs	29275.							28.3		28.3	0
Red Peak	5090.							5.1		5.1	0
Mt. Charleston	38370.			38.4	38.4	38.4	32.0	38.4	38.4	38.4	0
Total acres	2,102,811	209.8	0	1113.6	522.7	306.1	211.5	1992.2	1348.0	1464.2	0

II_

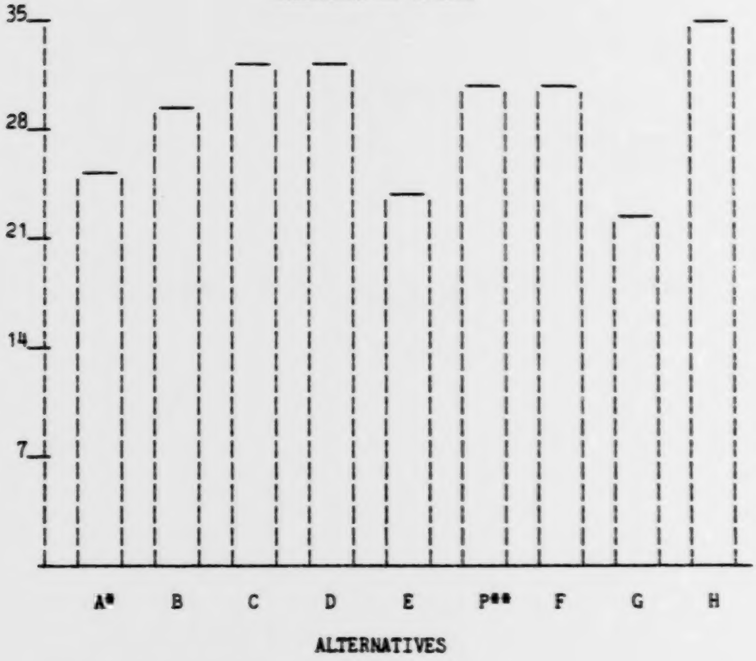
PLANNING ISSUE 9 :

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

Figures II-16 thru II-19 display the total WFUD output (fisheries and hunting), total WFUDs only for hunting, total WFUDs only for fisheries, and total wildlife improvement acres.

FIGURE II-16 TOTAL WILDLIFE AND FISHERY USER DAYS BETWEEN ALTERNATIVES
50 YEAR TOTAL

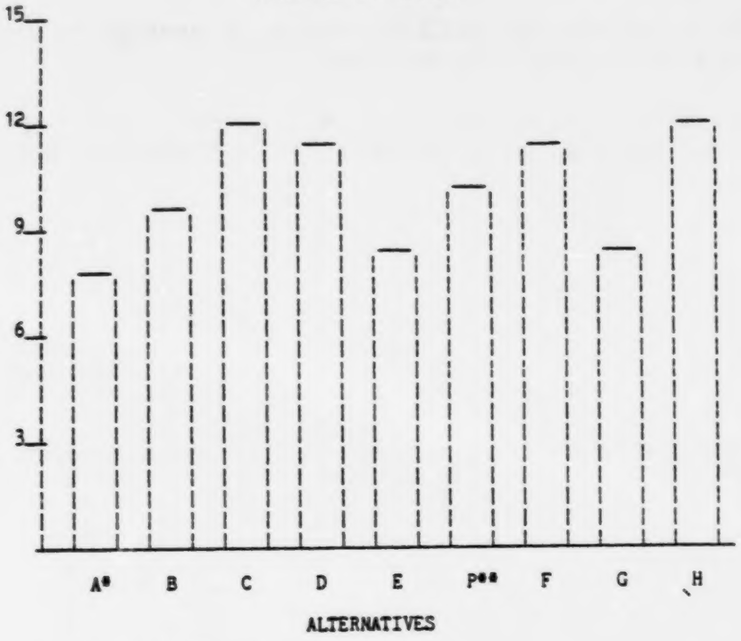
(millions of WFUDs)



* Current Management
** Preferred Alternative

FIGURE II-17 TOTAL WILDLIFE USER DAYS BETWEEN ALTERNATIVES
50 YEAR TOTAL

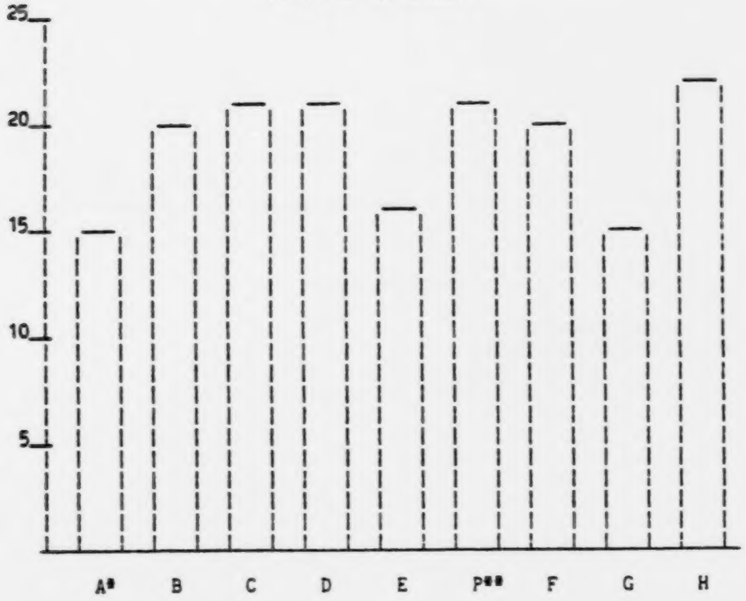
(millions of WFUDs)



* Current Management
** Preferred Alternative

FIGURE II-18 TOTAL FISHERY USER DAYS BETWEEN ALTERNATIVES
50 YEAR TOTAL

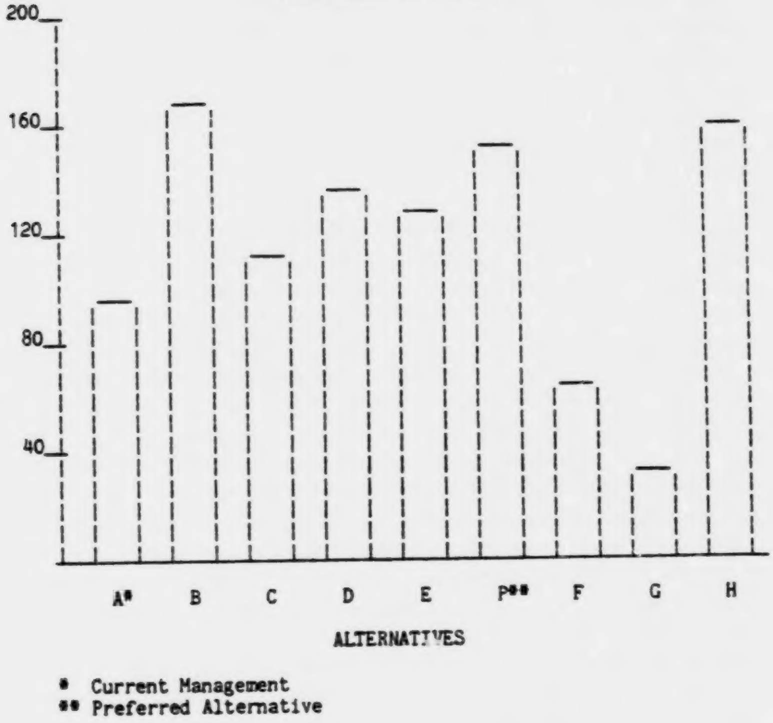
(millions of WFUDs)



* Current Management
** Preferred Alternative

FIGURE II-19 TOTAL WILDLIFE IMPROVEMENT ACRES BETWEEN ALTERNATIVES
50 YEAR TOTAL

(Thousands of Acres)



COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 9

A Alternative A provides a mixture of wildlife habitat. The level in this alternative of timber harvesting will favor early successional wildlife species. Wildlife and fisheries user-days would total 7,665,000 for the fifty year planning horizon. Fishing opportunities would total 15,516,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. Alternative A will have 99,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will increase.

B Alternative B provides a mixture of wildlife habitat. Increased timber harvesting will favor early successional wildlife species. Wildlife and fisheries user-days would total 9,530,000 for the fifty year planning horizon. Fishing opportunities would total 19,521,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 165,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 10% into satisfactory condition (57,465 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

C Alternative C provides a mixture of wildlife habitat. Wildlife and fisheries user-days would total 11,883,000 for the fifty year planning horizon. Fishing opportunities would total 20,346,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 111,960 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

D Alternative D provides a mixture of wildlife habitat. Increased timber harvesting will favor early successional wildlife species. Wildlife and fisheries user-days would total 11,198,000 for the fifty year planning horizon. Fishing opportunities would total 21,897,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 144,920 acres of direct wildlife habitat improvement projects for the fifty year period, with 60 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

E Alternative E provides a mixture of wildlife habitat. No timber harvesting would favor late successional wildlife species. Wildlife and fisheries user-days would total 8,320,000 for the fifty year planning horizon. Fishing opportunities would total 16,234,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 135,430 acres of direct wildlife habitat improvement projects for the fifty year period, with sixty five percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements would reduce conflicts.

P Alternative P provides a mixture of wildlife habitat. Increased timber harvesting will favor early successional wildlife species. Wildlife and fisheries user-days would total 10,472,000 for the fifty year planning horizon. Fishing opportunities would total 21,096,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 150,000 acres of direct wildlife habitat improvement projects for the fifty year period, with 65 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 10% into satisfactory condition (57,465 acres) over the current management situation. These additional acres over the minimum managment requirements will reduce conflicts.

F Alternative F provides a mixture of wildlife habitat. No timber harvesting will favor late successional wildlife species. Wildlife and fisheries user-days would total 11,432,000 for the fifty year planning horizon. Fishing opportunities would total 19,671,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 66,460 acres of direct wildlife habitat improvement projects for the fifty year period, with 65 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will increase slightly in some localized areas. The decrease in direct wildlife habitat improvement over the current situation would increase pressure on the existing riparian areas in some areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum managment requirements will reduce some conflicts.

G Alternative G provides a mixture of wildlife habitat. Increased timber harvesting will favor early successional wildlife species. Wildlife and fisheries user-days would total 8,362,000 for the fifty year planning horizon. Fishing opportunities would total 15,185,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 34,480 acres of direct wildlife habitat improvement projects for the fifty year period, with 50 percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will increase. The reduction of direct wildlife habitat improvement over the current situation would increase pressure in localized riparian areas by certain wildlife species. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum management requirments will reduce some conflicts.

H Alternative H provides a mixture of wildlife habitat. No timber harvesting will favor late successional wildlife species. Wildlife and fisheries user-days would total 12,593,000 for the fifty year planning horizon. Fishing opportunities would total 22,849,000 WFUDs over the fifty year planning horizon. Minimum management requirements (MMRs) provide management practices which will maintain viable populations of fish and wildlife species. This alternative will have 158,000 acres of direct wildlife habitat improvement projects for the fifty year period, with fifty percent in the Sierra and the remaining in central Nevada. Conflicts between wildlife and domestic livestock use of riparian areas will decrease. The increase in direct wildlife habitat improvement over the current situation would reduce pressure on the existing riparian areas. Range management activities will bring an additional 5% into satisfactory condition (28,180 acres) over the current management situation. These additional acres over the minimum management requirements will reduce conflicts.

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASES IN CENTRAL NEVADA ?

COMPARISON OF ALTERNATIVES IN RESPONDING TO ISSUE TOPIC 10

A	This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be the greatest. Roadless areas totaling 209.8 M acres (recommended for wilderness designation) will provide for a wilderness experience.
B	This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be the greatest. No acres of roadless areas recommended for wilderness designation will occur in this alternative. This alternative will acquire important deer winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston. It includes implementation of the Sierra Front Initiative.
C	This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 1,113.6 M acres (recommended for wilderness designation) will provide for a wilderness experience. This alternative will acquire important deer winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.
D	This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 592.7 M acres (recommended for wilderness designation) will provide for a wilderness experience. This alternative will acquire important deer winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.
E	This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas

totaling 306.1 M acres (recommended for wilderness designation) will provide for a wilderness experience.

P This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 211.5 M acres (recommended for wilderness designation) will provide for a wilderness experience. This alternative will acquire important deer winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston. It includes the implementation of the Sierra Front Initiative.

F This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (dispersed recreation trails) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 1,992.2 M acres (recommended for wilderness designation) will provide for a wilderness experience.

G This alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 1,348.0 M acres (recommended for wilderness designation) will provide for a wilderness experience. This alternative will acquire important deer winter habitat along the Reno-Carson Front, lands in Hope Valley and Mt. Charleston.

H This alternative has standards and guidelines to protect all the forest resources. Construction and reconstruction of facilities (both developed and dispersed) in this alternative will occur in the Sierra where the demand will be greatest. Roadless areas totaling 1,464.2 M acres (recommended for wilderness designation) will provide for a wilderness experience.

PLANNING ISSUE 11 :

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

All alternatives will maintain Research Natural Area status for Mt. Jefferson, Carpenter Canyon and add the Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alteration to the vegetative cover by mining activity over the last 10-15 years.

Economic Efficiency Analysis

Present net value (PNV) is the measure of economic efficiency used in Forest planning. It is defined as the difference between the discounted dollar value of all priced outputs and the discounted value of all expenditures for management and investment (the process of discounting expresses all values at a common date).

PNV is one important component or effect that is included in net public benefits. Any differences in PNV among alternatives may be related to the production of public benefits to which prices have not been assigned. Such benefits include certain outputs, such as endangered animals; physical conditions, such as the maintenance of areas with particularly pleasing visual qualities; and desirable distributive effects, as when especially high levels of commodities are produced to help support dependent communities. Also included are reductions in risk, such as those due to intensifications of insect and disease surveys, and improvements in quality, such as those due to increasing recreation site management standards. Similarly, differences in PNV may be related to the production of public benefits to which prices have been assigned. Further, differences in PNV may be directly related to the budget restrictions associated with the alternatives.

An important purpose of this section is to define the differences in the production of public benefits among alternatives that lead to the differences in PNV.

Table II-35 summarizes the economic information that is used in defining PNV for each alternative and for the benchmarks. This information includes total discounted benefits and the contributions to those benefits of individual priced outputs. It also includes total discounted costs of managing the Forest and the rough assignment, to facilitate the later discussion, of those costs to major accounting of budgeting categories of expenditures. (Note: Some combination of cost categories is necessary to support production of any particular priced output on a Forest-wide basis under a system of multiple use of integrated Forest management. Therefore, it would not be correct to assume that there is a one-to-one relationship between the dollar benefits listed under contribution of timber, or other priced output, to total discounted benefits, and the costs listed under 'contribution of timber, or other cost category, to total discounted costs'.)

Table II-35 Present Net Value and Priced Outputs for Alternatives

(1978 Dollars Inflated to 1/1/82)
Figures Shown in MM$
Discount Rate is 4%
(In Order of Decreasing PNV)

				PVB by Resources						PVC by Major Cost Categories								
	PNV	PVC	PVB	Rec.	Wilder	Fish & Wldlf	Grazing	Timber 1/	Other *	S&W	Minerals	Rec.	Wilder	Fish& Wldlf	Grazing	Timber 1/	Roads	Other *
BENCHMARKS																		
Min Level	274.2	49.2	323.7	127.5	231.2	172.9	0.0	0.0	39.3	1.6	4.0	4.3	1.3	1.7	0.3	0.9	0.0	35.4
PNV	990.0	152.1	1,142.1	269.2	198.5	402.2	35.5	2.0	234.7	5.1	9.8	14.2	4.2	4.4	9.7	4.5	16.7	83.5
ALTERNATIVES																		
H	990.0	152.1	1,142.1	269.2	198.5	402.2	35.5	2.0	234.7	5.1	9.8	14.2	4.2	4.4	9.7	4.5	16.7	83.5
D	869.7	183.1	1,052.8	299.1	148.8	355.0	37.4	17.1	195.4	4.8	9.9	24.9	2.3	4.3	10.4	12.7	28.7	85.1
F	865.8	109.8	975.7	218.0	267.3	346.2	35.5	1.8	106.9	3.9	9.8	10.7	5.0	3.5	9.3	4.3	2.0	61.3
C	831.1	146.8	977.8	240.7	234.0	359.3	35.3	5.4	103.1	5.6	9.9	12.9	3.6	4.8	9.8	5.5	13.0	81.7
B	810.9	204.2	1,105.1	313.8	23.3	320.8	37.7	21.2	388.3	5.8	14.9	34.7	1.3	5.8	11.3	16.6	32.9	80.9
P	791.9	174.7	966.6	287.9	149.9	346.9	36.7	10.0	135.2	5.9	12.5	30.4	2.1	4.9	10.9	8.9	16.3	82.8
G	697.4	181.1	878.5	220.8	245.1	267.5	38.5	17.3	89.3	2.5	9.8	25.7	4.0	2.4	11.0	13.5	29.7	82.5
E	661.5	98.9	769.4	205.2	181.2	293.6	36.3	2.5	50.6	2.3	9.9	13.5	2.2	2.9	9.0	4.7	2.0	52.4
A	508.2	129.8	638.0	216.0	102.5	202.6	37.4	12.9	66.6	2.6	9.8	14.9	1.9	2.9	9.6	10.3	12.1	71.0

1/ Includes sawtimber, Christmas trees, pinyon nuts, posts & poles, and fuelwood

PNV - Present Net Value
PVC - Present Value Costs
PVB - Present Value Benefit

Table II-36 PRESENT NET VALUE AND NONPRICED OUTPUTS
(1978 Dollars Inflated to 1982 Dollars)
(ALL DOLLARS IN MM$ - TEN YEAR PERIOD TOTAL)

Alternatives	PNV	PVC	PVB	DEER NUMBERS	FISH M-LBS	WLDRNSS M-ACRES	ROS-SPM M-ACRES	ROS-SPNM M-ACRES	JOB 1 INCREASE DECREASE	RETURNS U.S. MM$	RETURNS STATES MM$
ALTERNATIVE A	508.2	129.8	638.0								
1986				280,000	113.5	303.6	1087.1	1378.1	0	1.2	0.5
1995				279,000	125.6	303.6	1087.1	1378.1	0	13.3	4.5
2005				277,000	144.6	303.6	1087.1	1378.1		13.0	4.4
2015				277,000	144.6	303.6	1087.1	1378.1		12.9	4.4
2030				277,000	144.6	303.6	1087.1	1378.1		13.2	4.4
ALTERNATIVE B	810.8	204.2	1015.1								
1986				290,000	231.4	0.0	1087.1	1378.1	353	1.1	0.4
1995				316,000	233.5	0.0	795.5	991.1	522	16.6	5.7
2005				326,000	253.4	0.0	649.7	800.1		16.8	5.8
2015				326,000	253.4	0.0	503.9	609.1		17.1	5.8
2030				326,000	253.4	0.0	358.1	423.1		16.7	5.7
ALTERNATIVE C	831.0	146.7	977.8								
1986				320,000	145.7	1144.1	1087.1	1378.1	-334	1.5	0.3
1995				318,000	155.6	1144.1	1117.1	1323.1	191	11.7	3.9
2005				317,000	179.3	1144.1	1132.1	1298.1		11.1	3.7
2015				317,000	179.3	1144.1	1147.1	1273.1		11.1	3.7
2030				317,000	179.3	1144.1	1152.1	1263.1		11.0	3.6
ALTERNATIVE D	869.6	183.1	1052.8								
1986				290,000	104.6	522.8	1087.1	1378.1	252	1.3	0.5
1995				321,000	109.3	522.8	839.5	1070.0	430	15.7	5.4
2005				333,000	124.6	522.8	715.7	918.9		15.8	5.4
2015				333,000	124.6	522.8	591.9	767.5		16.0	5.5
2030				333,000	124.6	522.8	468.1	621.0		16.2	5.5
ALTERNATIVE E	661.4	98.9	760.4								
1986				280,000	67.3	303.7	1087.1	1378.1	-462	1.0	0.3
1995				281,000	131.4	303.7	1087.1	1378.1	-81	11.2	3.7
2005				231,000	139.4	303.7	1087.1	1378.1		10.6	3.5
2015				281,000	139.4	303.7	1087.1	1378.1		10.6	3.5
2030				281,000	139.4	303.7	1087.1	1378.1		10.6	3.5
ALTERNATIVE P	840.8	164.9	1005.7								
1986				290,000	142.4	211.5	1056.1	1409.1	244	1.4	0.4
1995				325,000	160.3	211.5	1056.1	1409.1	377	14.0	4.7
2005				336,000	192.4	211.5	1056.1	1409.1		14.0	4.7
2015				336,000	192.4	211.5	1056.1	1409.1		14.0	4.8
2030				336,000	192.4	211.5	1056.1	1409.1		14.0	4.9

Alternatives		PNV	PVC	FVB	DEER NUMBERS	FISH M-LBS	WLDRNSS M-ACRES	ROS-SPM M-ACRES	ROS-SPNM M-ACRES	JOBS[1]	RETURNS U.S. MM$	RETURNS TO STATE
ALTERNATIVE	F	865.8	109.8	975.7								
1986					290,000	132.4	1986.4	1087.1	1378.1	16	1.0	0.3
1995					303,000	159.4	1986.4	1047.1	1413.1	120	10.9	3.6
2005					303,000	175.3	1986.4	1027.1	1433.1		10.3	3.4
2015					303,000	175.3	1986.4	1007.1	1453.1		10.3	3.4
2030					303,000	175.3	1986.4	987.1	1478.1		10.3	3.4
ALTERNATIVE	G	697.3	181.0	929.3								
1986					290,000	103.5	1346.6	1087.1	1378.1	192	1.3	0.5
1995					271,000	123.7	1346.6	1031.1	1339.1	233	16.0	5.6
2005					264,000	131.6	1346.6	1003.0	1322.0		16.4	5.6
2015					264,000	131.6	1346.6	975.0	1305.0		17.0	5.7
2030					264,000	131.6	1346.6	947.0	1288.0		16.7	5.7
ALTERNATIVE	H	990.0	152.0	1142.1								
1986					290,000	155.6	1497.6	1087.1	1378.1	292	1.0	0.3
1995					320,000	145.0	1497.6	1087.1	1378.1	369	10.9	3.6
2005					333,000	243.0	1497.6	1087.1	1378.1		10.3	3.4
2015					333,000	243.0	1497.6	1087.1	1378.1		10.4	3.4
2030					333,000	243.0	1497.6	1087.1	1378.1		10.4	3.4

[1] Compared to no action

Table II-37 Present Net Value and Qualitative effects
(1978 Dollars Inflated to 1/1/82)
Figures Shown in M$
Discount Rate is 4%

	PNV	PVC	PVB	Narrative
BENCHMARKS				
Min level	274.2	49.2	323.7	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 0 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
PNV (Alt H)	990.0	152.0	1,142.1	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1464 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
ALTERNATIVES				
A	508.2	129.8	638.0	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized, wilderness acres will total 209 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
B	810.8	204.2	1015.1	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards roaded, natural, wilderness acres will total 0 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
C	831.0	146.7	977.8	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase , the ROS classification will shift towards non-motorized, wilderness acres will total 113 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
D	869.6	183.1	1052.8	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards motorized, wilderness acres will total 592 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
E	661.4	98.9	760.4	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 306 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
P	791.9	174.6	966.6	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will decrease, the ROS classification will shift towards motorized, wilderness acres will total 211 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.

ALTERNATIVE	PNV	PVC	PVB	Narrative
F	865.9	109.8	957.7	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1992 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
G	697.3	191.0	929.3	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1348 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.
H	990.0	152.0	1142.1	Within this alternative, the Air quality will remain the same as the current situation, the Visual quality will increase, the ROS classification will shift towards non-motorized, wilderness acres will total 1464 M acres, water quality will remain the same as the current situation, while soil productivity will be maintained.

Environmental Effects

Implementation of the nine alternatives would create physical, biological, social and economic impacts on the Toiyabe National Forest and adjoining counties. These impacts are discussed in detail in Chapter IV (Environmental Consequences). Table II-38 summarizes the significant biological and physical effects. Table II-39 summarizes the significant social and economic effects.

TABLE II-38 SIGNIFICANT BIOLOGICAL AND PHYSICAL EFFECTS

Resource	Biological and Physical Effects
Timber	Alternatives E, F, and H would produce no regulated timber harvest. Rather, any harvest activity would be limited to salvage from insects, disease or wildfire. Table II-40 lists the acreage devoted to various timber harvesting methods and acreage in intensive vs. nonintensive management.
Wildlife	Alternatives C, E, F, and H would favor species requiring old growth habitat. Alternatives B and G would reduce the acres available for old growth on acres suitable for timber. Alternatives A and P would provide for a balance. All alternatives would maintain viable populations of native plant and animal species.
Threatened and Endangered Species	The nine alternatives (A, B, C, D, E, P, F, G, and H) contain standards and guidelines designed to protect all threatened, endangered and sensitive species.
Diversity	Other than the acres from which timber is harvested, diversity will be influenced by the amount of direct habitat improvement projects carried out on the forest. In alternativen A, C, and P, diversity will remain the same as the current situation as timber harvesting and improvement acres will balance the age classes. Alternatives B, D, and G will cause a decrease of diversity as old/mature growth stands are converted to younger stands. Alternative E, F, and H will cause a decrease of diversity as younger stands grow older and not replaced by younger classes.
Range	All alternatives will meet minimum management requirements with regard to maintaining long term soil productivity and range condition. Alternatives A, B, D and P increase range condition above the MMR requirements. Alternatives C, E, F, G and H maintain soil productivity through range condition.
Soil and Water	All alternatives contain standards and guidelines to ensure that all water meets state federal water quality standards.

TABLE II-38 SIGNIFICANT BIOLOGICAL AND PHYSICAL EFFECTS

Resource	Biological and Physical Effects
	The non-degradation of water quality and soil productivity are minimum management requirements (MMRs) for all alternatives.
	All alternatives have unknown (but likely insignificant) effects on groundwater recharge, quality and instream uses (including fisheries).
	Some soil disturbance could occur from indiscriminate ORV use. All alternatives contain standards and guidelines which limit ORV use to areas where damage would be minimal.
Riparian Areas	All alternatives contain standards and guidelines designed to protect riparian areas.
Minerals	All alternatives contain standards and guidelines designed to manage the mineral resources.
Utility Corridors	Toiyabe National Forest presently has three principal utility corridors. Where possible, future demand for utility corridors would be limited to established rights-of-way or addressed through the Environmental Assessment process.
Air Quality	All alternatives contain prescribed burning programs which vary according to activities within the alternatives. Prescribed fires would cause some temporary air pollution (smoke) which would persist for a few hours following the burn. These impacts would be short-term and localized. A smoke management plan would be prepared with each burn to ensure compliance with state and federal clean air standards.
Land Purchase, Acquisition and Adjustment	All alternatives contain similiar land acquisition/exchange programs. Each of these alternatives contains the same exchange targets. The priority of exchange varies between these alternatives based on the goals and objectives for each alternative. A separate environmental analysis would be performed with every exchange or acquisition.
Cultural Resources	All alternatives contain standards and guidelines designed to insure protection of cultural resources by meeting the legislative requirements and by following established procedures. See Chapter IV for effects by alternatives.
Visual Quality	The visual impact of the management practices in Alternatives B, C, P and H would be slight. The visual impacts from alternatives D, E and G could be significant, due primarily to reclamation activities associated with minerals.
Recreation Use	Alternative A would have no new developed recreation sites. Alternatives B, D, and G would have a significant impact upon dispersed recreation (primarily upon recreational opportunities

TABLE II-38 SIGNIFICANT BIOLOGICAL AND PHYSICAL EFFECTS

Resource	Biological and Physical Effects
	among different ROS classes). Alternatives C, F, G, and H would significantly increase wilderness opportunities.
Protection	Acres burned by wildfire vary inversely with protection expenditures. Alternative A would have the highest, and alternative B and P the lowest acres burned. The others are in between the extremes.
Research Natural Areas	All alternatives will maintain RNA status for Mt. Jefferson, Carpenter Canyon and add the Babbit Peak area to the system. The Sweetwater would be dropped because the significent alteration of the vegetative cover by mining activities over the last 10-15 years.

Table II-39 summarizes the SIGNIFICANT social and economic effects by social group for the nine alternatives. As explained in Appendix B, the social and economic analysis is based on the ANNUAL change in the first decade.

TABLE II-39 SIGNIFICANT SOCIAL AND ECONOMIC EFFECTS

Parameter	Social and Economic Effects
Employment	Average annual changes* in employment.

Alternative	Changes in Employment (Jobs)* Total
A	106
B	170
C	182
D	430
E	-81
P	377
F	120
G	223
H	369

TABLE II-39 SIGNIFICANT SOCIAL AND ECONOMIC EFFECTS

Parameter	Social and Economic Effects
Income	Average annual changes* in income.

Changes in Income (Millions of Dollars)*

Alternative	Salary
A	-.17
B	4.20
C	3.62
D	-2.41
E	10.68
P	9.02
F	1.87
G	6.32
H	7.35

*From base year (FY 1977). Change is from first to the second period.

Parameter	Social and Economic Effects
25% Returns to Counties	Average annual 25% returns to the counties containing the Toiyabe National Forest during the first period would be:

Alternative	Annual 25% Returns (Millions of Dollars)
A	.45
B	.57
C	.39
D	.57
E	.37
P	.47
F	.36
G	.56
H	.36

Parameter	Social and Economic Effects
Timber Harvesting	Average annual allowable sale quantity during the first decade would be:

Alternative	Annual Allowable Sale Quantity (Millions of Cubic Feet)
A	.92
B	1.85
C	.31
D	1.39
E	.00
P	.69
F	.00
G	1.39
H	.00

TABLE II-39 SIGNIFICANT SOCIAL AND ECONOMIC EFFECTS

<table>
<tr><th>Parameter</th><th>Social and Economic Effects</th></tr>
<tr><td>Hunting</td><td>Average annual hunting opportunities during the first decade would be:
<table>
<tr><th>Alternative</th><th>Annual Hunting Opportunities (Thousands of WFUDs)</th></tr>
<tr><td>A</td><td>402.0</td></tr>
<tr><td>B</td><td>599.0</td></tr>
<tr><td>C</td><td>620.0</td></tr>
<tr><td>D</td><td>547.0</td></tr>
<tr><td>E</td><td>423.0</td></tr>
<tr><td>P</td><td>453.0</td></tr>
<tr><td>F</td><td>494.0</td></tr>
<tr><td>G</td><td>456.0</td></tr>
<tr><td>H</td><td>427.0</td></tr>
</table></td></tr>
<tr><td>Wilderness</td><td>The acreage of Roadless areas recommended for wilderness designation in each of the alternatives would be:
<table>
<tr><th>Alternative</th><th>Roadless Acreage Recommended for Wilderness (M Acres)</th></tr>
<tr><td>A</td><td>209.8</td></tr>
<tr><td>B</td><td>0.0</td></tr>
<tr><td>C</td><td>1,113.6</td></tr>
<tr><td>D</td><td>592.7</td></tr>
<tr><td>E</td><td>306.1</td></tr>
<tr><td>P</td><td>211.5</td></tr>
<tr><td>F</td><td>1,992.2</td></tr>
<tr><td>G</td><td>1,348.0</td></tr>
<tr><td>H</td><td>1,464.2</td></tr>
</table></td></tr>
<tr><td>U.S. Returns Treasury</td><td>Average annual returns to the Treasury from the Toiyabe National Forest for the first period.
<table>
<tr><th>Alternative</th><th>Returns to U.S. Government (MM$)</th></tr>
<tr><td>A</td><td>1.2</td></tr>
<tr><td>B</td><td>1.6</td></tr>
<tr><td>C</td><td>1.1</td></tr>
<tr><td>D</td><td>1.5</td></tr>
<tr><td>E</td><td>1.1</td></tr>
<tr><td>P</td><td>1.4</td></tr>
<tr><td>F</td><td>1.0</td></tr>
<tr><td>G</td><td>1.6</td></tr>
<tr><td>H</td><td>1.0</td></tr>
</table></td></tr>
</table>

As discussed earlier, some of the alternatives produce significant differences in environmental effects in responding to the eleven issue topics. Any significant differences in effects for any alternative in responding to the issue topics are discussed on the next pages.

PLANNING ISSUE 1:

HOW SHOULD THE VARIOUS RECREATION ACTIVITIES ON THE FOREST BE ALLOCATED TO BEST MEET THE NEEDS OF A VARIETY OF RECREATIONAL VISITORS?

These alternatives contain policies, management practices, standards and guidelines designed to provide a diversity of dispersed recreational experiences including automobile travel, backpacking, boating, camping, coldwater fishing, horseback riding, hunting, nature study, ORV use, swimming, and white water floating.

SUPPLY OFFERED BY ALTERNATIVE
(50 year total)

Alternative	Dispersed Recreation*	Developed Recreation*
A	97.5	28.0
B	127.7	51.6
C	108.2	30.4
D	124.8	57.8
E	87.0	31.0
P	111.5	59.6
F	97.0	31.4
G	71.6	61.5
H	126.4	31.5

*Millions of RVDs

PLANNING ISSUE 2:

HOW SHOULD THE FOREST RESOURCES BE MANAGED FOR TIMBER IN (A) SIERRA DIVISION (B) PINYON-JUNIPER TYPE (C) LAS VEGAS (MT. CHARESTON)?

Each alternative identifies acreas of the Toiyabe National Forest as being capable, available and suitable for timber production (refer to Table II-28).

Alternative	Total Harvest [50 Yrs.(MMCF)]	Annual Long-run Sustained Yield (MMCF)	Fuelwood Availability [50 Yrs. (MMCF)]
A	46.0	1.06	28.1
B	93.2	2.10	32.0
C	15.5	1.41	28.8
D	69.5	1.83	28.7
E	0.0	0.00	27.0
P	34.7	1.54	29.3
F	0.0	0.00	17.8
G	69.5	1.50	25.5
H	0.0	0.00	23.7

Alternative	SUITABLE ACRES
A	48,317
B	82,795
C	65,663
D	79,229
E	0
P	70,583
F	0
G	62,174
H	0

PLANNING ISSUE 3:

(A) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN THE FLOW OF HIGH QUALITY WATER?

(B) HOW SHOULD AQUATIC AND RIPARIAN HABITATS BE MANAGED SO THEIR QUALITY IS MAINTAINED OR IMPROVED?

(C) HOW SHOULD THE FOREST BE MANAGED AND/OR USES ADJUSTED TO MAINTAIN SOIL PRODUCTIVITY?

Alternative	Soil loss over natural (percent)
A	5
B	23
C	3
D	13
E	0
P	5
F	0
G	12
H	0

PLANNING ISSUE 4:

HOW SHOULD RANGELANDS ON THE TOIYABE NATIONAL FOREST BE UTILIZED TO MEET THE NEEDS OF LIVESTOCK, WILDLIFE, WILD FREE-ROAMING HORSES AND BURROS, WATER, AND OTHER RESOURCE USES AND VALUES?

SUPPLY BY ALTERNATIVES
[(50 Yrs. (MAUMS)]

Alternative	Domestic Livestock	Wild Free-roaming horses and Burros
A	4920.0	212.0
B	4978.0	375.0
C	4607.0	335.3
D	4905.0	270.0
E	4753.0	231.0
P	4931.0	255.0
F	4615.0	276.0
G	5108.0	251.0
H	4640.0	288.0

PLANNING ISSUE 5:

HOW SHOULD THE FOREST TRANSPORTATION SYSTEM BE PLANNED, MANAGED AND MAINTAINED SO AS TO PROVIDE ACCESS TO NATIONAL FOREST LANDS AND RESOURCES?

The management prescriptions contained within each alternative contain schedules for the construction of system roads within individual Managment Areas. Local road construction would be associated with harvesting of timber products except in alternatives E, F, and H. The road system would be located by Forest Engineers to facilitate multiple resource management

PLANNING ISSUE 6:

(A) TO WHAT EXTENT SHOULD THE FOREST ACQUIRE NEW LANDS INTO THE NATIONAL FOREST SYSTEM AND WHERE?

(B) WHAT UTILITY CORRIDORS, SUBSTATION SITES AND ELECTRONIC SITES ARE NEEDED AND WHERE?

(C) WHAT PUBLIC ACCESSES (RIGHTS-OF-WAY) ARE NEEDED AND WHERE?

Each alternative contains land adjustment directives which permit the adjustment of National Forest system lands to accommodate the goals and objectives of the alternative. Land adjustments would be used to consolidate federal ownership to increase the efficiency of multiple use management, provide greater public access to National Forest system lands and increase the acreage devoted to key wildlife winter habitat. Land consolidation would also reduce impacts from adjacent landowners.

Alternatives provide for the designation of the following utility corridors:

I-80 (Donner Pass Area)
US 50 East (Bob Scott Summit area)
Sylmar-Los Angeles Transmission Line

A window for possible new utilities is established north and south of Kingsbury (Dagget Pass) from the Meyers-Buckeye line north to the Buckeye-Round Hill line and at Luther Pass.

Specific projects proposed for construction will be handled through the Environmental Analysis process as will requests for new utility corridors. See Table III-14 for electronic sites and Table III-15 for public access (right-of-way).

PLANNING ISSUE 7:

HOW SHOULD THE FOREST BE UTILIZED TO SATISFY NATIONAL NEEDS FOR MINERALS AND ENERGY RESOURCES WHERE OTHER RESOURCE OPPORTUNITIES WOULD BE FORGONE?

ACTIVITIES BY ALTERNATIVES
[50 Yrs. (NUMBERS)]

Alternative	Operating Plans	Acres Distrubed	Acres Reclaimed
A	12,210	33,100	31,445
B	13,200	34,700	32,965
C	10,750	23,170	20,853
D	12,180	24,470	26,096
E	11,340	33,100	28,135
P	12,069	32,070	30,466
F	10,069	18,205	16,385
H	13,300	23,170	22,012
G	10,295	19,860	17,874

PLANNING ISSUE 8:

SHOULD THE FOREST RECOMMEND WILDERNESS DESIGNATION FOR ANY OF THE AREAS INVENTORIED UNDER THE REVISED STUDY? IF SO, WHICH ONE(S)?

SUPPLY BY ALTERNATIVES (50 year total)

Alternative	Acres Recommended	Percent Acres	Wilderness Use MM RVD's
A	209.8	11	15.03
B	0	0	5.05
C	1,113.6	56	51.71
D	529.7	27	33.06
E	306.1	15	33.16
P	211.5	10	34.40
F	1,992.2	100	59.21
G	1,348.0	68	54.47
H	1,464.2	73	44.44

PLANNING ISSUE 9:

HOW SHOULD THE TOIYABE NATIONAL FOREST BE MANAGED TO MAINTAIN AND IMPROVE WILDLIFE AND FISH HABITATS?

SUPPLY BY ALTERNATIVES
(50 year total)

Alternative	Acres Improvement	Wildlife*	Fisheries*
A	99,000	7,665,000	15,516,000
B	165,000	9,530,000	19,521,000
C	111,960	11,883,000	20,346,000
D	144,920	11,198,000	21,897,000
E	135,430	8,320,000	16,234,000
P	150,000	10,472,000	21,096,000
F	66,460	11,432,000	19,671,000
G	34,480	8,362,000	15,185,000
H	158,020	12,593,000	22,849,000

* Millions of WFUDS

PLANNING ISSUE 10:

HOW SHOULD THE TOIYABE NATIONAL FOREST RESPOND TO THE IMPACTS FROM URBAN ENCROACHMENT INTO THE FOREST ALONG THE RENO-CARSON FRONT, AND GENERAL POPULATION INCREASE IN CENTRAL NEVADA?

Each alternative has standards and guidelines to protect all the forest resources. Construction of facilities (both developed and dispersed) will occur in the Sierra where the demand will be the greatest. Location and capacity of these facilities will be coordinated with State and local governments. This will prevent duplication of facilities and ensure an adequate variety. Varying amounts of acres of roadless areas recommended for wilderness designation will provide for a wilderness experience. Forest Service facilities will enhance the dispersed recreation resource. Thru the land adjustment program, conflicts between public and private ownerships and rights-of-way will be minimized.

PLANNING ISSUE 11:

WHAT ADDITIONAL AREAS ON THE TOIYABE NATIONAL FOREST SHOULD BE CLASSIFIED AS RESEARCH NATURAL AREAS?

Each alternative will maintain Research Natural Areas status for Mt. Jefferson, Carpenter Canyon and add the Babbitt Peak area to the system. The Sweetwater R.N.A. would be dropped because of the significant alternation of the vegetative cover by mining activity over the last 10-15 years.

TABLE II-40 TIMBER HARVEST METHODS AND INTENSITY TOTAL BY ACRES BY ALTERNATIVE

	SHELTERWOOD-CLEARCUT			THINNING	RETENTION VISUAL ZONE-CUTTING			INTENSIVE MANAGEMENT	NON-INTENSIVE MANAGEMENT
	Mixed Conifer	Jeffrey Pine	Lodgepole Pine	ALL SPECIES	Mixed Conifer	Jeffrey Pine	Lodgepole Pine		
MAX PNV & ALT H									
1ST PERIOD	0	0	0	0	0	0	0	0	0
TOTAL ASSIGNED 0	0	0	0	0	0	0	0	0	0
ALTERNATIVE A									
1ST PERIOD	2,529	547	0	0	2,702	43	0	1,410	4,410
TOTAL ASSIGNED 48,317	13,356	22,086	5,045	77,914	3,935	3,382	513	20,660	27,657
ALTERNATIVE B									
1ST PERIOD	6,266	0	0	0	3,182	43	0	3,229	6,262
TOTAL ASSIGNED 82,795	26,578	23,203	15,464	145,743	6,088	5,303	6,159	33,990	48,805
ALTERNATIVE C									
1ST PERIOD	1,110	0	0	0	323	43	0		1,476
TOTAL ASSIGNED 65,663	23,324	24,377	8,432	2,083	4,825	3,621	1,084	6,717	58,946
ALTERNATIVE D									
1ST PERIOD	4,593	0	0	0	2,702	43	0	726	6,612
TOTAL ASSIGNED 79,229	26,492	23,729	16,104	74,299	5,557	5,302	2,045	16,849	62,380
ALTERNATIVE E									
1ST PERIOD	0	0	0	0	0	0	0	0	0
TOTAL ASSIGNED 0	0	0	0	0	0	0	0	0	0
ALTERNATIVE F									
1ST PERIOD	1,627	511	0	0	2,702	43	0	622	4,261
TOTAL ASSIGNED 70,583	17,110	26,575	14,526	25,593	5,541	4,786	2,045	11,173	59,410
ALTERNATIVE F									
1ST PERIOD	0	0	0	0	0	0	0	0	C
TOTAL ASSIGNED 0	0	0	0	0	0	0	0	0	0
ALTERNATIVE G									
1ST PERIOD	4,593	0	0	0	2,702	43	0	1,399	5,939
TOTAL ASSIGNED 62,174	18,895	22,732	8,397	117,065	5,516	5,041	1,593	26,520	35,654
ALTERNATIVE H									
1ST PERIOD	0	0	0	0	0	0	0	0	0
TOTAL ASSIGNED 0	0	0	0	0	0	0	0	0	0

TABLE II-41 PRICE OF OUTPUTS FOR PNV CALCULATION

Source	Resource	Output Measure	Value or Prices
RPA	Developed Site Public	RVD	3.00
RPA	Developed Site Private	RVD	3.50
RPA	Developed	RVD	3.00
R-4	Hunting	WFUD	24.51
R-4	Fishing	WFUD	17.85
R-4	Wilderness	RVD	8.00
R-4	Wilderness-Hunting	WFUD	24.51
R-4	Wilderness-Fishing	WFUD	17.85
R-4	Improvement measure	WFUD	20.05
R-4	Range permitted use	AUM	13.12
R-4	Pinyon Pine nuts	Pounds	.25
R-4	Christmas Trees	Tree	1.00
R-4	Post and Poles	Pole	2.00
R-4	Pinyon Fuelwoods	MCF	100.00
R-4	Softwood Roundwood	MCF	125.00
R-4	Firewood	Cord	10.00

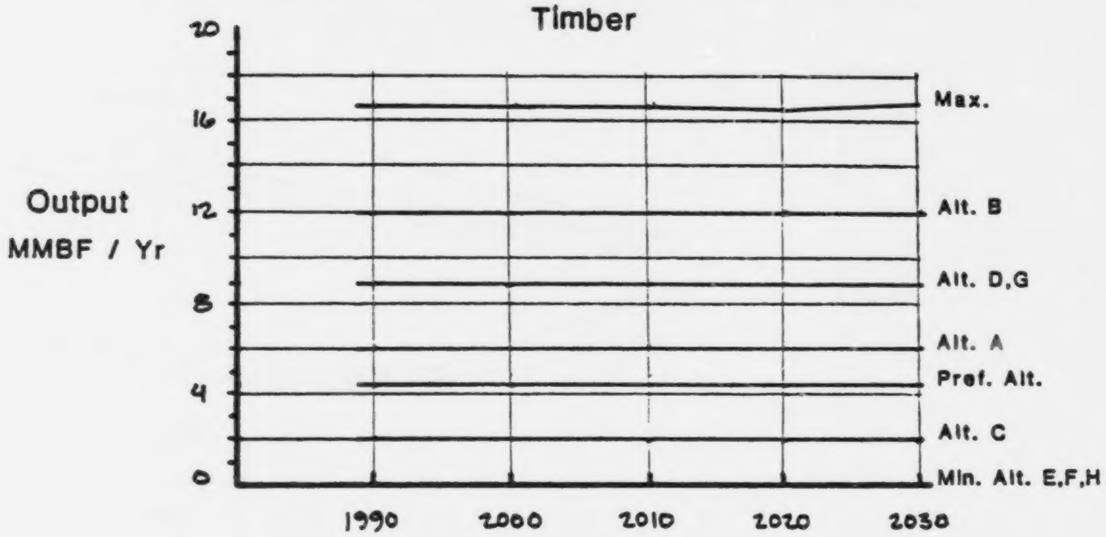
TIMBER		$ / MBF	
Jeffrey Pine <30% slope	16-40 inch DBH	63.25 to 77.86	1/
Jeffrey Pine >30% slope	16-40 inch DBH	24.30 to 38.95	1/
Mixed Conifer <30% slope	16-40 inch DBH	45.59 to 55.98	1/
Mixed Conifer >30% slope	16-40 inch DBH	6.68 to 17.07	1/
Lodgepole pine <30% slope	16-28 inch DBH	22.43 to 25.31	1/
Lodgepole pine >30% slope	16-28 inch DBH	-16.48 to -11.31	1/

1/ This is timber value after normal logging, hauling and manufacturing costs have been taken out. These values were calculated from a study of Toiyabe National Forest timber sales from 1970 to 1981. See Appendix B for procedure used.

Figure: II-20

BENCHMARK / ALTERNATIVE LEVELS

Timber



Range

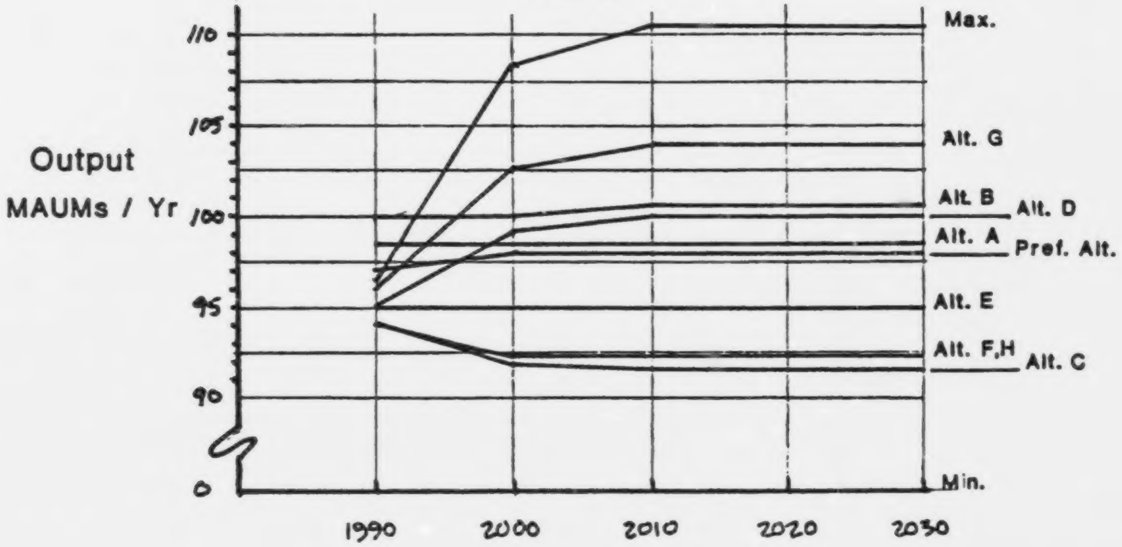
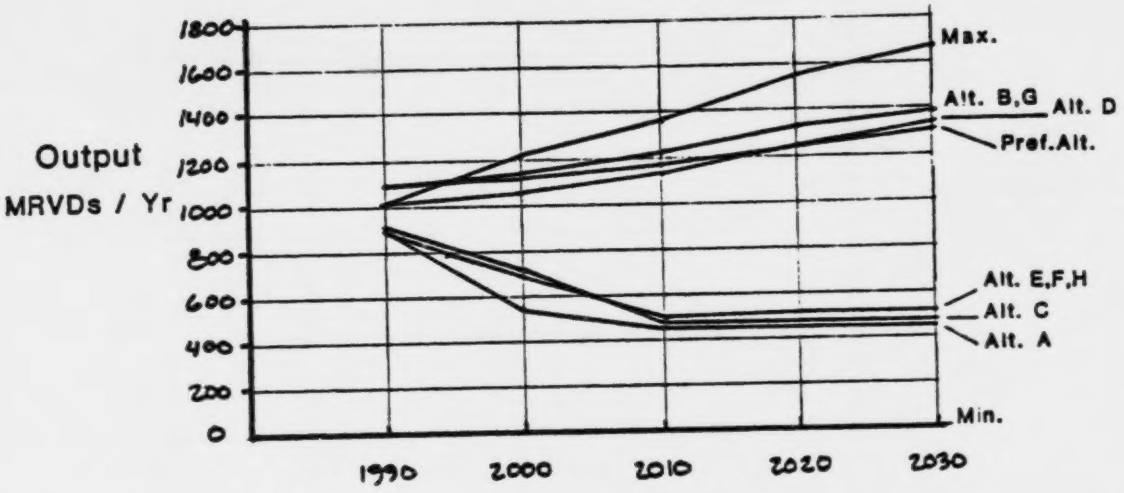


Figure: II-20 (cont.)

BENCHMARK / ALTERNATIVE LEVELS


Developed Recreation

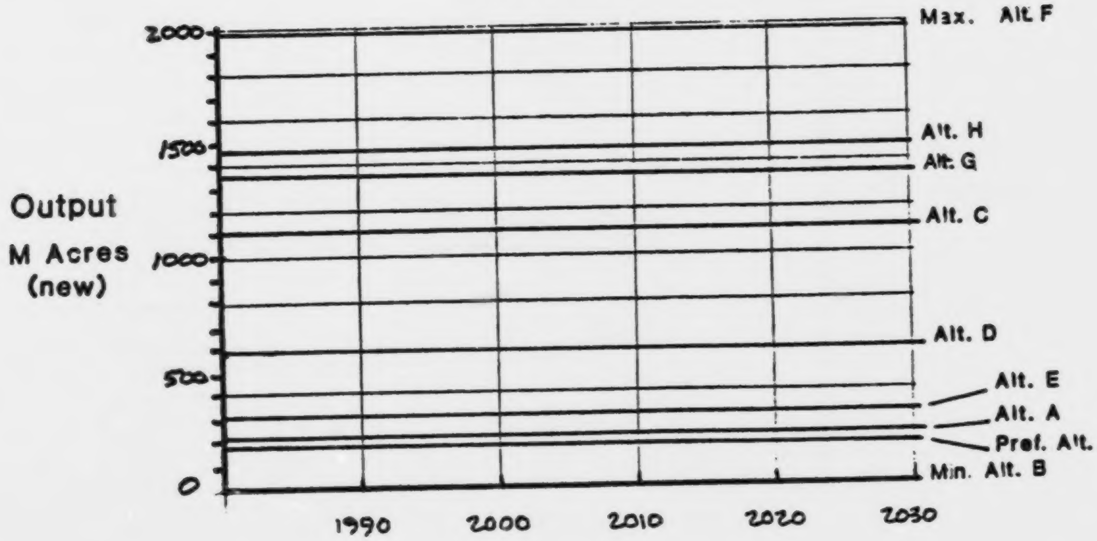

Wilderness

TABLE II-42 LONG-TERM SUSTAINED YIELD CAPACITY AND ALLOWABLE SALE QUANTITY SUMMARY BY ALTERNATIVES

Alternative A

			Decade					
ASQ in:	1	2	3	4	5	... 10	... 15	... 20
MCF	924.7	924.7	924.7	924.7	924.7	924.7	924.7	924.7
MBF	6000	6011	6002	6000	6021	6060	6041	6000

Long-term sustained yield capacity 1058 MCF per year.

Alternative B

			Decade					
ASQ in:	1	2	3	4	5	... 10	... 15	... 20
MCF	1851.8	1861.9	1861.9	1872.8	1872.8	1872.8	1872.8	1873.6
MBF	12000	12000	12000	12000	12000	12070	12007	12000

Long-term sustained yield capacity 2101 MCF per year.

Alternative C

			Decade					
ASQ in:	1	2	3	4	5	... 10	... 15	... 20
MCF	308.6	308.6	308.6	308.6	308.6	308.6	308.6	308.6
MBF	2000	2014	2018	2007	2000	2039	2029	2017

Long-term sustained yield capacity 1418 MCF per year.

Alternative D

			Decade					
ASQ in:	1	2	3	4	5	... 10	... 15	... 20
MCF	1388.9	1388.9	1388.9	1396.8	1396.8	1396.8	1396.8	1396.8
MBF	9000	9000	9000	9000	9000	9023	9002	8929

Long-term sustained yield capacity 1835 MCF per year.

Alternative E

			Decade					
ASQ in:	1	2	3	4	5	... 10	... 15	... 20
MCF								
MBF								

Long-term sustained yield capacity 0 MCF

TABLE II-42 Continued

Alternative P

			Decade								
ASQ in:	1	2	3	4	5	...	10	...	15	...	20
MCF	693.3	693.3	693.4	693.7	693.6		693.7		693.6		693.6
MBF	4500	4500	4500	4500	4500		4547		4525		4522

Long-term sustained yield capacity 1541 MCF per year.

Alternative F

			Decade								
ASQ in:	1	2	3	4	5	...	10	...	15	...	20
MCF											
MBF											

Long-term sustained yield capacity 0 MCF

Alternative G

			Decade								
ASQ in:	1	2	3	4	5	...	10	...	15	...	20
MCF	1388.9	1388.9	1388.9	1391.8	1391.8		1391.8		1394.4		1394.4
MBF	9000	9009	9005	9000	9000		9022		9000		9006

Long-term sustained yield capacity 1495 MCF per year.

Alternative H

			Decade								
ASQ in:	1	2	3	4	5	...	10	...	15	...	20
MCF											
MBF											

Long-term sustained yield capacity 0 MCF

III. AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes the existing management situation for resources and activities of the Toiyabe National Forest. Future needs for these resources and the Forest's ability to supply that need, as well as the expected future condition of resources, are described. Information provided in this chapter is contained in greater detail in the planning document entitled "Analysis of the Management Situation (AMS)."

PHYSICAL AND BIOLOGICAL SETTING

The planning unit consists of all National Forest lands on the Toiyabe National Forest, with the exception of those Toiyabe National Forest lands lying within the Lake Tahoe Basin. In 1973, by Presidential proclamation, a portion of the Toiyabe National Forest in the Lake Tahoe Basin became part of a special management area, the Lake Tahoe Basin Management Unit (LTBMU), along with portions of the Tahoe and Eldorado National Forests. This was established to provide special protection for the unique feature of Lake Tahoe and its watershed. This area will not be covered by the Toiyabe Forest Plan. Further mention of the Toiyabe will not include those lands in LTBMU.

The Toiyabe consists of three distinct divisions, each with different resource capabilities, Issues, Management Concerns, and users. The three divisions are: Sierra Nevada (Carson and Bridgeport Ranger Districts), Central Nevada (Austin and Tonopah Ranger Districts) and Mt. Charleston (Las Vegas Ranger District).

The Forest falls within two analysis areas as defined by the Regional Guide: the Sierra Front and the Great Basin Analysis Areas. The Toiyabe is a scattered Forest encompassing parts of western, central, an southern Nevada and eastern California.

Portions of seven California counties and ten Nevada counties are within the Forest administrative boundary (see Table III-1). The Sierra Division of the Forest is bounded on the west by the Tahoe, Eldorado, Stanislaus, and Inyo National Forests, LTBMU and Yosemite National Park. The remainder of the Sierra Division is primarily bounded by private lands in Nevada and lands managed by the Bureau of Land Management (BLM) in California. The Central Nevada and Mt. Charleston Divisions are almost entirely encompassed by lands managed by the BLM.

CLIMATE

Sierra Nevada - The Sierra is heavily influenced by it's close proximity to the Pacific Ocean. Annual variation in snowfall is great because of the Pacific influence. Precipitation falls mainly in the winter as snow and may total as much as 70 inches per year at the highest elevation. At the base of the Sierra Front, precipitation seldom exceeds 15 inches.

Central Nevada - Summers are hot, but winters are relatively mild. Annual precipitation averages only 5 inches in the valley to 20 inches in the higher elevations. Most of the moisture falls in winter although intense summer thunderstorms and flash flooding are common.

Mt. Charleston - Summers are hot. Precipitation ranges from 11 inches to 28 inches annually, mostly in the winter as snow. There are intense thunderstorms in late July and early August. This unit is influenced during the summer with moisture from the Mexican Pacific Coast.

FOREST DESCRIPTION

The following is a brief description of the three divisions comprising the Forest.

Sierra Front - Approximately 700,000 acres generally lying west of US Highway 395 along the California-Nevada border. The area supports a variety of important commercial tree species, including Jeffrey pine, white fir, California red fir, western white pine, and lodgepole pine. Lesser amounts of sugar pine, incense cedar and mountain hemlock exist. Aspen is limited and there are extensive stands of pinyon-juniper at the lower elevations. The area produces most of the water for western Nevada and includes the sources of the Carson and Walker River systems. Lakes are plentiful, visual quality is outstanding and recreation use of the area is extremely high. The Mammoth Lake Caldera, although on the Inyo National Forest lands, would impact the Toiyabe with varying levels of ash deposit in the event of an eruption.

Central Nevada - Includes lands in Lyon and Mineral counties in Nevada, as well as lands farther east in Nye, Lander and Eureka counties. Approximately 2.4 million acres are within this unit. The area is typical of the Basin/Ranges landform in Nevada. Climatic conditions are generally harsh. Vegetation consists of pinyon-juniper and sagebrush-grass types. Aspen occurs frequently at higher elevations. The headwaters of the Reese River are on National Forest lands. Livestock grazing and mining of gold,silver, uranium, and barite are the principal activites.

Mt. Charleston - Fifty-eight thousand acres of National Forest system land are included on Mt. Charleston near Las Vegas, Nevada. This is a thrust or fold of limestone formation rising sharply from the desert floor and includes a low desert to subalpine environment. Vegetation includes ponderosa pine, white fir, bristlecone pine, oak and pinyon-juniper. There has been no livestock grazing or commercial timber harvest over the last 20 years. The predominant use is recreation.

Table III-1 lists acreages for the Forest by districts, state and county.

TABLE III-1 TOIYABE NATIONAL FOREST ACREAGE
BY DISTRICT, STATE, AND COUNTY

	NF LAND	OTHER	GROSS
D-1 CARSON RANGER DISTRICT			
Alpine County	221,082	28,712	249,794
Eldorado County	17	0	17
Lassen County	1,323	396	1,719
Nevada County	2,573	1,925	4,498
Placer County	0	82	82
Sierra County	28,386	1,541	29,927
Total California	253,381	32,656	286,037
Douglas County	14,029	7,237	21,266
Washoe County	52,181	53,972	106,153
Carson City	5,479	449	5,928
Total Nevada	71,689	61,658	133,347
D-1 Total	325,070	94,314	419,384
D-2 BRIDGEPORT RANGER DISTRICT			
Mono County	380,478	28,432	408,910
Total California	380,478	28,432	408,910
Douglas County	30,017	100	30,117
Lyon County	178,938	7,421	186,359
Mineral County	257,042	3,802	260,844
Total Nevada	465,997	11,323	477,320
D-2 Total	846,475	39,755	886,230
D-3 AUSTIN RANGER DISTRICT			
Eureka County	144,108	557	144,665
Lander County	296,186	5,216	301,402
Nye County	560,591	5,473	566,064
D-3 Total	1,000,885	11,246	1,012,131
D-4 TONOPAH RANGER DISTRICT			
Nye County	941,235	5,768	947,003
Esmeralda County	1	0	1
D-4 Total	941,236	5,768	947,004

TABLE III-1 CONTINUED

D-5 LAS VEGAS RANGER DISTRICT			
Clark County	58,039	4,178	62,217
D-5 Total	58,039	4,178	62,217
Nevada	2,537,846	94,173	2,632,019
California	633,859	61,088	694,947
TOTAL NF (Without LTBMU)	3,171,705	155,261	3,326,966

RESOURCE ELEMENTS

RECREATION

The Toiyabe National Forest holds a position of relatively high importance in the provision of outdoor recreation to the American public. In the National Forest System, the Toiyabe has held an average ranking of 19th in the Nation in outdoor recreation over the last decade. It has consistently held second place in Region 4 (Intermountain Region).

The Toiyabe is the largest Forest in acres in the contiguous 48 states, and is widely scattered through central, western and southern Nevada and eastern California. Portions of the Forest are located close to Nevada's two major population centers, Reno-Sparks - Carson City, and Las Vegas. Other portions such as much of the South Sierra Division, although relatively remote from large cities, are nonetheless heavily used. Such use occurs because the various adjacent Forests are nearing or already at, a saturated level of recreation use. The Tahoe, Eldorado, Stanislaus, and Inyo National Forests, which lie between the Toiyabe National Forest and the large California population centers, all contribute a recreation user spillover to the Toiyabe. The proximity of Lake Tahoe and Yosemite National Park also greatly affects recreation use on the Toiyabe National Forest. The Bridgeport area is one of the most heavily used recreation destination areas in the National Forest system.

Developed Recreation (Public)

Some developed recreation sites within portions of the Forest are operating at well over 40% of their theoretical capacity (PTC). Forty percent PTC is the nationally accepted level of maximum advisable occupancy of a developed site. (At this level of use, site deterioration may become evident).

In parts of the Forest, some campgrounds are operating consistently above 50 percent; some at 70, 80 and even 90% PTC. These use levels occur on campgrounds in Alpine County, Robinson Creek, Virginia Creek, and on Mount Charleston. Such levels of use are inflicting environmental impacts far above acceptable levels, as well as being far above the normal acceptable social density of occupancy.

In southern Nevada, outdoor recreation facilities are concentrated primarily around two major resource areas: the Spring Mountains (all of the Las Vegas District is within this range); and around Lake Mead and Mohave on the Colorado River (Lake Mead National Recreation Area, administered by the National Park Service). The vast majority of any forested mountain environment and climatic relief in southern Nevada is found on the Las Vegas District of the Toiyabe National Forest. The scarcity of these elements has caused the Las Vegas District's developed sites to be excessively impacted. Since snow is such a rare commodity, the District's one ski area and one snowplay area, as well as several popular undeveloped sites, are heavily impacted.

If the current trend of developed site recreational use continues, within the first decade (by 1995), most developed sites throughout the Forest will exceed the advisable 40 percent theoretical capacity level; many will have reached levels as high as 70 percent.

On hardened sites, as planned for the rehabilitation of Robinson Creek Campgrounds, it appears that up to 70 percent theoretical capacity might be an acceptable maximum occupancy level. Beyond that level, it appears that deterioration would be unacceptable. Without the construction of new sites, both existing sites and areas of concentrated use will be impacted at unacceptable levels. If this occurs, use restrictions will have to be imposed, and many sites may have to be closed.

Based on population growth trends and various recreation growth rates evident in different sectors of the Forest, it appears that an average of 360 family units (1,800 persons-at-one-time, PAOT) will need to be constructed each decade to satisfy the expected recreation demand.

Developed Recreation (Private)

There are 162 recreation special use permits on the Toiyabe, nearly all of which are on the Sierra and Las Vegas Districts. Some of the most significant are: Grover Hot Springs Campground and Picnic Area (State of California); Ichthyosaur State Monument/Campground and Picnic Area (State of Nevada National Natural Landmark); Clear Creek Camp (State of Nevada); Slide Mountain and Lee Canyon Ski Areas (both privately operated); Hope Valley Resort, Leavitt Meadows Lodge, Twin Lakes Resort and Doc & Al's Resort (all private permittees); and Leavitt Meadows, Little Antelope Valley and Virginia Lakes Pack Stations (private permittees).

There are also a number of resorts based on private lands, which significantly impact the recreation resource of the National Forest. Foremost is Mono Village, which offers a store, restaurant, boating and fishing facilities, large campground and parking to the public for access to the Hoover Wilderness beyond. This resort effectively blocks convenient public access to a large sector of the Hoover Wilderness and Yosemite National Park.

It seems likely there will continue to be applications for new kinds of recreation special uses, such as river running. Over the last 10 years, special use permits for floating the East Carson River have been in great demand. Helicopter skiing also has become popular in the southern part of the Sierra Division.

This recent general increase in applications for recreation special use permits and the growing interest in additional wilderness classification, can be expected to continue.

Dispersed Recreation

Dispersed recreation use includes activities such as hunting, fishing, hiking, driving for pleasure, camping and other activities outside of developed sites.

Several areas of the Forest experience unusally high levels of dispersed recreation use. Three such areas are the Hoover Wilderness; the upper West Walker River drainage, which consititues a possible addition to the Hoover Wilderness; and the upper East Carson River drainage, which is the Toiyabe portion of the Carson-Iceberg Wilderness. Such areas are responsible for the Toiyabe's frequent number-one ranking in dispersed recreation in the Intermountain Region.

Other portions of the Toiyabe, especially the Central Nevada Division, are located hundreds of miles from any population centers of significant size. Central Nevada's closest major market is Reno, nearly 200 miles to the west. Las Vegas is about 300 miles to the south. Central Nevada's remoteness, its inaccessability and its sparsely populated, wilderness-like character has long best served as a dispersed recreation area.

The Recreation Opportunity Spectrum (ROS) was used to determine the supply and demand for dispersed recreation on the Toiyabe National Forest. Its application shows that for ROS classes, the Toiyabe's supply should exceed the demand through the planning period (see Table III-2). However, present funding does not sufficiently allow for the development and/or adequate maintenance of certain dispersed recreation activities.

TABLE III- 2 EXISTING SUITABLE ACRES AVAILABLE, EXISTING USE (RVD), AND CAPACITY (RVD) BY ROS CLASSES FOR DEVELOPED AND DISPERSED RECREATION

ROS Classes	Net Suitable Acres	Existing Use (RVD's)	Capacity (MRVD's)
1. Primitive			
Developed	0	0	0
Dispersed	68,533	54.3	154.3
2. Semi-Primitive, Nonmotorized			
Developed	0	0	0
Dispersed	697,441	4,619.9	4,619.9
3. Semi-Primitive, Motorized			
Developed	125	59.4	350.6
Dispersed	547,579	2,204.0	2,204.0
4. Roaded, Natural			
Developed	768	644.0	2,151.5
Dispersed	263,160	8,500.0	8,500.0
5. Rural			
Developed	604	710.0	1,692.3
Dispersed	7,451	651.7	651.7
6. Urban			
Developed	377	1,056.2	1,056.2
Dispersed	246	38.8	38.8

The Forest provides approximately 1021 miles of trails for hiking, backpacking, horseback riding and ORV use. Many miles of the trail system are of minimal usability because of inadequate maintenance.

Portions of the National Forest also offer the terrain and climate most suited for dispersed winter sports activities, such as snowplay, snowmobiling and skiing. However, the lack of parking and reasonable access has discouraged full participation and utilization of this resource.

Full implementation and enforcement of the Forest Travel Plan is presently not possible. Closure of environmentally or visually sensitive areas to off-road vehicles (ORV's) has often caused that use to shift to another area.

At present funding levels, the Forest cannot provide adequate trail maintenance, properly manage dispersed winter sports activities or fully implement the Forest Travel Plan.

Cultural Resources

On the Toiyabe National Forest approximately 1500 cultural resource sites have been identified. Historical properties consist of dumps, building foundations, rock and wooden structures and various artifacts related to early settlement of the Victorian Frontier and the mining, ranching and timber industries. Prehistoric resources include isolated artifacts and features, lithic scatters, quarries, rock art, seasonal camps and residential sites. These prehistoric resources evidence long-term occupation ranging from paleoindian through the archaic cultures into historic contact. Ethnographic cultures include the Western Shoshone, Washoe, and the Southern, Mono and Northern Paiute groups. In California there was also peripheral contact with the Maidu and Miwok people and in southern Nevada the Paiute are peripheral to the Puebloan cultures along the Muddy, Virgin and lower Colorado Rivers.

Approximately 88,000 acres have been surveyed on the Toiyabe and about 400 cultural resource projects have been conducted. This translates to the fact that roughly 2.8% of the forest has been inventoried. Allowing for approximately 20% of inaccessible land, it is estimated that 2,432,900 acres remain to be surveyed and that about 41,000 sites remain to be recorded.

In 1982 Region 4 instituted the use of the Intermountain Antiquities Computer System (IMACS). During the 1984 fiscal year, previously recorded site data was encoded for the system. For management purposes, IMACS allows for standardization of site recordation, manipulation of data sets, and the storage and retrieval of large amounts of information.

Additionally, the Toiyabe has participated in the development of the Archaeological Element for the Nevada State Historic Preservation Plan. This document is used as guidance in the development and implementation of cultural resource plans including but not limited to regional overviews, survey samples, testing, and plans for data recovery and mitigation of effects. Currently, there is no comprehensive Cultural Resource Overview. A preliminary draft was developed in 1981, and constitutes only about 30% of what is needed. It is anticipated that a comprehensive overview will be completed in 1988.

Wild and Scenic Rivers

Rivers that have designation potential for Wild, Scenic and/or recreation classification were inventoried by the Former USDI Heritage Conservation and Recreation Service for possible inclusion in the National Wild and Scenic River System under Section 2, PL 90-542. The following rivers were inventoried:

> East Walker River - from bridge crossing below Sweetwater Creek confluence to bridge crossing near Headwaters of Flying M Ranch.
>
> West Walker River - from junction of canal from northern Topaz Lake to source.
>
> East Fork Carson River - from last diversion dam; approximately one (1) mile above Lahonton Fish Hatchery, to the source.

The Toiyabe NF has completed eligiblity studies on the East Fork of the Carson River and the West Fork of the Walker. The eligiblity study for these rivers is on file in the Supervisor's Office. Although the eligibility study has been completed, the suitability study remains and is scheduled for completion in the Forest Plan.

The BLM has been designated lead agency for completion of the eligibility and suitability study on the East Walker River. Completion of this study will be scheduled in the BLM planning process.

In the interim, management activities will be limited to assure protection of wild/scenic or recreation values until recommendations and decisions are made.

Scenic Resources

An inventory of the scenic resources on the Forest has been completed using the visual management system outlined in "National Forest Landscape Management, Volume 2."

The existing inventory includes the following at the end of the fifty year period.

Visual Quality Objective 1/	M Acres
Preservation 2/	344.9
Retention	383.7
Partial Retention	1,032.2
Modification	1,172.4
Maximum Modification	238.5
	3,170.0

1/ Visual Quality Objectives (VQO) are defined in the glossary.

Special Areas

1. Research Natural Areas (RNA)

The Research Natural Area (RNA) is a USDA designation that recognizes the importance of setting aside certain areas for research and educational purposes. Three Research Natural Areas have been designated on the Toiyabe National Forest.

Carpenter Canyon (Mt. Charleston) - vegetative type: Bristlecone pine, interior Ponderosa pine, pinyon pine, alpine meadows and barren. This area is approximately 2500 acres.

Mt. Jefferson (central Nevada) - vegetative type: Aspen, limber pine, alpine meadows and barren. This area is approximately 2500 acres.

Sweetwater (western Nevada) - vegetative type: Pinyon-juniper, Great Basin sagebrush. This area is approximately 2,236 acres. The area has been heavily disturbed by mining activity and no longer meets the objective of the original research natural area classification.

Another area, Babbitt Peak, has been evaluated jointly with the Tahoe National Forest. This area includes vegetative types of Washoe pine, red fir, western white pine and mountain hemlock. This area is approximately 960 acres on the Toiyabe and 2500 acres on the Tahoe National Forest.

2. National Natural Landmarks

The National Park Service (USDI) maintains a national inventory of significant natural landmarks. The Ichthyosaur Paleontologic State Monument is a registered Natural Landmark. The area is located on National Forest lands in central Nevada and operated under special use permit by the Nevada State Department of Parks. Additionally, the Park Service has inventoried potential additions to the register. The potential sites on the Forest include:

Mt. Jefferson, Sweetwater and Carpenter Canyon - The same areas as described for the Research Natural Area(s).

Arc Dome - Located within the proposed Arc Dome Wilderness. Includes the Dome, elevation of 11,775 feet.

Wild Granites - This is a granite outcrop along the east slope of the Toiyabe Range in central Nevada.

The Forest is currently managing existing Research Natural Areas and the proposed Babbitt Research Natural Area to meet the research and educational objectives of the Research Natural Areas. The Ichthyosaur State Monument is being managed by the State for both scientific and educational purposes and for intensive recreation; (i.e., camping and day use). The Wild Granites are managed to protect the scenic values and desert bighorn sheep habitat. The Arc Dome area has been managed to protect its wilderness qualities.

Wilderness

Existing Wilderness

The Hoover Wilderness of 48,601 acres is jointly administered by the Toiyabe and Inyo National Forests. The Toiyabe administers 39,094 acres and Inyo administers the remaining 9,507 acres.

Of California's National Forest wilderness areas, the Hoover, although the sixth smallest, had the tenth highest total recreation visitor days use in 1980. Of those same wilderness areas, the Hoover ranked seventh highest in visitor days use per acre.

Increasing recreational use continues to cause adverse environmental impacts and social conflicts, especially where use concentrates at portals, along favorite entrance trails and in various popular areas; this emphasizes the need for better access, circulation and dispersal.

Degradation of vegetation and soils continues to increase. Visual pollution is a growing problem. Human and domestic animal caused pollution and sedimentation of lakes and streams is increasing. Without controls and corrective actions, the importance of wilderness values are being increasingly diminished by man's presence and activities. Human stresses inflicted on certain wildlife species, such as the bighorn sheep, continue to increase. Risk of human-caused fire is increasing.

Fire plays a very important role in almost all of the ecosystems found in the Eastern Sierra. It effects vegetative community development through its influence on succession. Studies show that the fire cycle has been 10 to 40 years with stands replacing fire every 200 to 400 years. Fire exclusion through successful fire protection has altered this natural process. Reintroduction of fire by a natural ignition process in wilderness would allow development of natural ecosystems.

A national Roadless Area Review and Evaluation (RARE II) was completed in January 1979. As a result of RARE II, a number of areas on the Toiyabe National Forest were recommended for wilderness and further study.

The RARE II decision was challenged by the State of California. The Ninth Circuit Court of Appeals upheld the decision that the RARE II Environmental Statement was inadequate. After evaluating the court decision, the US Department of Agriculture determined that all roadless areas would be re-evaluated for wilderness through the Forest Planning Process.

Prior to the California Wilderness Act of 1984, the Forest Planning process had developed an inventory of lands that are essentially unroaded and undeveloped, meeting the minimum definition of wilderness, and qualified for wilderness evaluation per NFMA Regulation 219.17. The inventory contained 65 roadless areas, totalling 2,187 thousand acres forest-wide.

California Wilderness Act of 1984 (CWA) In September, 1984, the California Wilderness Act (CWA) was signed by the President. The legislation included the following on the Toiyabe National Forest:

Wilderness (CWA)

Carson Iceberg 77,000 acres (approximate acreage) - Excludes an area around Noble Canyon. (An additional 83,000 acres is on the Stanislaus Natonal Forest)

Mokelumne additon 19,000 acres (approximate acreage) - Includes the Raymond Peak Core area and Tragedy Elephants Back area. (An additional 36,000 acres are on the Stanislaus and Eldorado National Forests)

Congressional Study Areas (CWA) These areas require a report to the congress within three years of the date of the CWA.

Carson-Iceberg Planning Area - 9,700 acres (approximate acreage) - Area around Noble Canyon.

Hoover West Planning Area 49,200 acres (approximate acreage) - Area around West Walker River.

RARE II Further Planning Areas (CWA) (Retained for further study)

Hoover East Further Planning Area - 54,100 acres
Sweetwater Further Planning Area - 40,000 acres (California Portion only) Sweetwater has 40,000 acres in California and 8,700 acres in Nevada.

The remaining RARE II Roadless Areas in California were released to non-wilderness uses for the initial cycle of planning. In Nevada, the Toiyabe inventoried 54 Roadless areas totaling 1.5 million acres, (see Appendix C for a detailed description and evaluation of each Roadless Area).

Summary of Wilderness Planning

The Toiyabe is evaluating all 54 Nevada Roadless Areas and the 4 California Planning Areas for possible Wilderness. Areas of interest in Nevada and California were evaluated in RARE I and II and the current planning effort. The public has expressed interest in the following areas:

Hunter Creek
Hoover Additions
Excelsior
Arc Dome
Table Mountain
Carson Range
Sweetwater Mountains
Mt. Jefferson
Toiyabe Range (North of Arc Dome)
Mt. Charleston

The Hoover Planning Area has received considerable support for Wilderness over the years by various publics and was a RARE II Wilderness recommendation. In Nevada, there has been continuous public interest for wilderness designation for Arc Dome, the Excelsiors, Table Mountain, the North Toiyabe Range, Mt. Jefferson and Mt. Charleston. The major conflict has been with Wilderness and minerals. Although there is strong public interest for these areas, the issue is to arrive at a compromise that provides quality wilderness while minimizing impacts on mineral opportunities.

The demand for wilderness in Nevada will ultimately be met when legislation for specific areas is enacted. The demand for wilderness in California has largely been met with passage of The California Wilderness Act of 1984, with the exception of futher planning areas. The Forest Plan can recommend and provide a level of protection for these areas, however, the demand can only be met by legislation. The supply of the wilderness resource (Wilderness Benchmark) is expected to lessen over time. Chapter IV estimates how many acres will be available for evaluation at the end of the first planning period, (10-15 years).

TIMBER

Land Classification

Lands capable, available, and tentatively suitable for timber production were determined in accordance with regulations in 36 CFR 219.14 and documented in the timber section of AMS. Tables III-3 and III-4 display the results of the capable, available, and tentatively suitable determination.

TABLE III- 3 LAND CLASSIFICATION

CLASSIFICATION	Acres
1. Non-Forest land (includes water)	1,524,098
2. Forest land	1,647,607
3. Forest land withdrawn from timber production 1/	40,495 1/
4. Forest land not capable of producing crops of industrial wood	1,484,845
5. Forest land physically unsuitable: Irreversible damage likely to occur Not restockable within 5 years	15,788
6. Forest land - inadequate information	0
7. Tentatively suitable forest land (Item 2 minus items 3, 4, 5, and 6)	106,479
8. Forest land not appropriate for timber production:	
Assigned to other resource uses in plan (Wilderness)	18,351
Not cost efficient in meeting plan objectives	2/
9. Unsuitable forest land (Items 3, 4, 5, 6, and 8)	2/
10. Total suitable forest land (Item 2 minus item 9)	2/
11. Total National Forest system land (Items 1 and 2)	3,171,705

1/ Hoover Wilderness and includes lands in RARE II designated wilderness areas by California Wilderness Act of 1984 - Mokelumme Wilderness (Raymond Peak Core Area and Tragedy-Elephants Back) and Carson-Iceberg.

2/ Acreage varies with each alternative. See DEIS Chapter IV, Table IV-1 for acres for these items by alternative.

TABLE III- 4 TENTATIVELY SUITABLE AND AVAILABLE TIMBER INVENTORY BY SPECIES STRATA GROUP

Species Strata Group	Acres
Jeffrey Pine	
Seedlings and Saplings	3,755
Immature Sawtimber	16,869
Mature Sawtimber	12,531
Total	33,155
Mixed Conifer	
Seedlings and Saplings	1,094
Immature Sawtimber	4,112
Mature Sawtimber	27,466
Total	32,672
Lodgepole Pine	
Seedlings and Saplings	494
Immature Sawtimber	1,540
Mature Sawtimber	24,068
Total	26,102

Existing Situation

Three different timber management situations exist on the Forest. The Sierra Nevada range supports commercial stands of Jeffrey pine, the true firs, and lodgepole pine, with lesser stands of white pine and mountain hemlock. Logging has been conducted in the Sierra since the 1800's. Pinyon-juniper stands are found throughout Toiyabe National Forest, with the majority in central Nevada. These woodlands have historically provided firewood, charcoal, and fencing materials. Mt. Charleston supports both pinyon-juniper and commercial species like Ponderosa pine. Although some early-day logging took place on Mt. Charleston, the timber there has not been managed, and very little timber harvesting has occurred.

The Toiyabe has been selling 6,000,000 board feet of timber annually, primarily in sawlog size material from the Alpine County and Dog Valley areas. Other districts provide products such as posts, Christmas trees, pinyon nuts, and firewood.

Timber management activities and annual sale offerings are the result of a timber management plan approved April 3, 1970. This plan was amended October 31, 1973, and extended through September 30, 1980. The plan was again amended April 14, 1980, to place areas recommended for wilderness by the January, 1979, RARE II Final Environmental Statement from "commercial forest land" to "productive deferred." This amendment also adjusted the volume, inventory, growth, mortality, and potential yield figures. It also extended the management plan until preparation and approval of a new plan based on reinventory of the Forest's timber resources or development of the Forest Land Management Plan.

Dwarf mistletoe and bark beetles are affecting timber stands on the Forest. These localized areas require treatment to prevent spread of the insects or disease. It is expected that loss of growth and mortality from disease and insects will continue but not increase, provided good growth rates are maintained in the timber stands and localized infection areas receive control treatments.

The primary silvicultural system used in recent years has been shelterwood. Removal cuts have been made in stands with good existing understories of saplings and poles. These understories have been thinned by removal of sawlogs and fuelwood operations. The continuing high demand for fuelwood enables good utilization of material produced from normal precommercial thinning. Emphasis has been placed on thinning overstocked immature stands. In mixed conifer stands, expecially those where red fir is the major species, various stages of shelterwood cuts have been implemented with the objective of obtaining reproduction and eventual conversion to a young growth managed stand.

Harvest from private forest land in the area is estimated to have been 2 MMBF or less during the last 10 years. Timber harvest on the Toiyabe National Forest prior to 1970 had been higher as old growth timber was harvested. The need for timber produced from Toiyabe National Forest is not believed to be increasing. The Gardnerville mill could obtain a larger percentage of their needs from private and/or adjacent National Forests. The Gardnerville mill is approximately 45 percent dependent on the Toiyabe National Forest.

Timber has been bid above the appraised value in most sales. Central Nevada and Las Vegas areas do not provide sawtimber harvest. Neither area has mills in the vicinity.

Future Condition Under Current Management

Over a 200 year period, Toiyabe's timber stands are described as follows:

Jeffrey pine - Within recommended Wilderness, the pine continues toward older age classes. Within nonwilderness areas, age class distribution improves, although there remains an excess acreage of small sawtimber 70-90 years of age.

Mixed Conifer - Within recommended Wilderness, the mixed conifer continues toward older age classes. Within nonwilderness areas, age class distribution improves, except there is a shortage of small sawtimber 70-90 years of age.

Lodgepole Pine - As there is no regulated harvest, the Lodgepole pine working group moves toward over-maturity and age class distribution becomes greatly unbalanced after 200 years.

Growth - Growth increases in the managed Jeffrey pine and mixed conifer working groups and drops off in the Lodgepole pine and all timber stands in wilderness areas. Overall, there is a declining growth rate.

Stand vigor should be high except in those stands needing thinning. The likely flow of timber outputs if the current timber management plan is followed would be 6,000,000 board feet. A low level of sawtimber could be produced from commercial thinning the second growth stands. The current program will not resolve the uneven age class distribution but will improve the age class distribution.

Wood Products

1. Firewood

Requirements for firewood have increased dramatically in the last several years. Data is available regarding consumption for the last 3 years. Consumption in FY 1979 was 5,802 cords, 1980 was 7,213, and 1981 was 3,992 on paid permits. Free use totaled approximately 13,000 cords in 1979 and 18,500 cords in 1980. This consumption is highly influenced by fire season. The dry year of 1981 saw the woodcutting areas closed for a significant portion of the season due to the fire danger. Consumption in the Northern Sierra Front area is primarily used by Reno-Sparks area residents. The Southern Sierra Front area is used by Carson City, Tahoe, Minden/Gardnerville, and surrounding areas along with some commercial woodcutting. The firewood harvest in central Nevada districts, where the resource exceeds the need, is limited due to distance from population centers. Las Vegas has limited firewood harvest due to lack of firewood supply.

Current amount supplied is at a level which will probably continue for at least the next 20 years along the Sierra Front. Should the amount supplied be increased to a level equal to the amount needed per year, the available firewood would be exhausted in several years. Need is currently greater than supply, and this need should continue to increase. Some of this increased need will be met on neighboring Forests. The amount available for harvest in central Nevada is quite large and is higher than the quantity demanded, due chiefly to its inaccessability and distance from large populations.

2. Pinenuts

Commercial pinenut harvest occurs in central Nevada. In 1980, consumption was approximately 34,000 pounds. It was 150,000 pounds in 1981. Starting in 1980, pinenuts were offered at competitive sale. Private noncommercial use is allowed throughout the Forest at no cost.

Amount of pinenuts is primarily dependent on weather conditions. So the Forest has little control on this output other than to open up more marginal areas. However, much of the potential harvest on the marginal and other areas is needed by wildlife for food and continuing renewal of trees. Need is currently less than the amount of pinenuts offered and should remain fairly constant.

3. Miscellaneous Products

Miscellaneous products include posts, poles, and Christmas trees. There is an increasing need for poles for the house-log industry and for fence posts. Currently, there are no area mills that can handle the small size of these logs to convert them into lumber.

Christmas tree need is very high in the Sierra Front and Las Vegas area. In the Northern Sierra Front area, only a minimum amount of trees are harvested (in conjunction with firewood permits) as there is not an adequate resource to meet the existing need. The Las Vegas District does not have Christmas tree sales due to lack of excess trees that could be cut. The Bridgeport District allows harvest of pinyon pine trees. The BLM also supplies pinyon pine trees in this area. In central Nevada, pinyon pine trees exceed consumption due to distance from large population centers.

Christmas tree requirements will increase as population increases. This need will far exceed the local resource, which is at a fairly constant level. Amount of trees in central Nevada will continue to be greater than the quantity needed.

WATER

Water Quantity

Nevada is the most arid state in the nation when considered on a statewide basis. Due to this moisture scarcity, demand for water always exceeds supply.

Toiyabe National Forest lands in California and Nevada produce a large share of this valuable water since a majority of the high elevation, high water producing terrain in the Great Basin is administered by the Forest Service. Approximately 70% of the available water is produced on less than 14% of the total area of the Great Basin.

The Toiyabe National Forest annually produces approximately 9,490 M acre feet of water. Table III-5 lists estimates of water yield from major watersheds by the three separate divisions on the Toiyabe.

TABLE III- 5 ESTIMATED ANNUAL WATER YIELD BY MAJOR WATERSHEDS IN ACRE FEET

Sierra Division	Acre Feet
Truckee River	86,300
Carson River	343,679
Walker River	271,326
Walker Lake Basin	11,000
Total	712,405
Central Nevada Division	**Acre Feet**
Big Smokey Valley	35,200
Monitor Valley	67,000
Upper Reese River Valley	36,000
Gabbs Valley	1,000
Ione Valley	5,200
Antelope Valley	14,000
Little Fish Lake Valley	14,000
Stone Cabin Valley	9,700
Ralson Valley	1,000
Total	192,100
Mt. Charleston Division	**Acre feet**
East Slope	25,000
West Slope	20,000
Total	45,000
Grand Total	949,505

There is no active program of water yield augmentation through vegetative manipulation on the Toiyabe. Extremely limited opportunities exist for increases of water yield from high elevation forested lands in the Sierra Division. However, ecological and multiple use constraints on timber harvest severely limit this potential. Increases that may be occurring from current management practices are primarily incidental and of relatively short duration.

There continues to be efforts by various water resource and utility districts at weather modification in an attempt to increase Sierra snowpack. The U.S. Bureau of Reclamation is currently conducting an intensive study (Project Skywater) on the impacts of cloud seeding in the northern Sierras.

Water Rights

Forest Service water rights policy is to secure water needed for the management of the National Forest in the most effective and efficient manner consistent with applicable State and Federal laws. Claims of vested rights by the Forest Service for water sources that were first put to beneficial use prior to the establishment of the National Forest are currently being challenged. The Forest Service was recently denied claims of federal reserved rights for instream flows in the federal adjudication of the Carson River, and claims of federal reserved rights made for nonconsumptive instream flows in Nevada are not recognized by the State Engineer's Office.

The Toiyabe NF has filed approximately 450 claims for water rights with the State of Nevada since 1979. It appears that additional claims will have to be filed with the state in order to meet Forest Service policy and adhere to Nevada State water law. On the California portion of the Toiyabe National Forest, it is anticipated that few additional sources will be inventoried due to the status of the various decrees on the Carson, Walker, and Truckee rivers.

Water Storage and Impoundments

There are sixteen dams under special use permit with reservoirs that total 805 surface acres. All of these are located in the Sierra Division. A few other dams are located entirely on private or state lands within the Forest boundary. One 10-acre reservoir is located on the Mt. Charleston Division.

Twenty potential hydroelectric power and reservoir sites have been identified in or adjacent to the National Forest boundary and several new applications have been filed for additional hydroelectric proposals. The majority of the significant proposals are on the Sierra Division. If constructed, direct impacts on the water resource associated with these proposals could be immense. Water used to maintain favorable flows to provide for stable channels benefit aquatic and riparian habitat and these would be the most directly affected. Direct impacts due to recreation use associated with the facilities would also significantly affect the soil and water resources on the adjacent National Forest. Although the public interest for both large and small hydroelectric projects is high, most of the projects have not proven cost efficient.

Municipal Watersheds

There are nine municipalities adjacent to the Toiyabe National Forest that are served by watersheds. Special management consideration has provided for the protection of water quality, quantity, and timing of the flow on these watersheds. Formal user agreements exist with only two of the nine municipalities served by watersheds on the Toiyabe National Forest.

In addition, numerous small potable water supply systems have been developed on National Forest lands for campgrounds, summer homes, administrative sites, pack stations, and resorts. Although the source areas for these systems have not been designated as municipal, special management consideration has provided for the protection of these water sources.

Two watersheds on the Mt. Charleston Division, Lee and Kyle Canyon, purportedly provide a significant portion of the groundwater supply to the city of Las Vegas. Considerable effort has been extended in the study of hydrogeologic relationships in these watersheds in an attempt to determine subsurface flow characteristics and potential pollution hazards.

Water Quality

An estimated 98% of the runoff originating within the Toiyabe National Forest meets state and federal water quality standards. The major exception is Leviathan and Bryant Creek below the abondoned Leviathan sulphur mine located on private land within the National Forest. Mine effluent and nonpoint source pollution associated with the mine waste dumps have rendered the receiving waters unfit for beneficial uses.

Qualitative evaluations indicate that sediment and turbidity are the key water quality constituents that degrade the aquatic ecosystem on the Toiyabe. Much of the soil loss comes directly from riparian areas in unsatisfactory conditions. Some water quality monitoring has been accomplished on the Forest, but only specific high risk management activities are currently being monitored. No Forest-wide program for evaluating aquatic ecosystem exists. Differentiation between human-caused sediment/turbidity pollution and natural conditions is difficult to assess. There has been no attempt to monitor compliance with either California's or Nevada's nondegradation clauses.

The projected on-Forest need for water is small compared to the annual production of approximately 949,500 acre feet per annum and the downstream off-Forest need. Future on-Forest needs are expected to rise slightly due primarily to increases in recreation uses. Need for water currently exceeds the available supply in most off-Forest areas. The greatest needs are for irrigation, fish propagation, and municipal uses and by the year 2030 total need will far exceed requirements for meeting both consumptive and nonconsumptive needs. Requests for pollution-free water for municipal and fish propagation purposes will increase as need for additional water exceeds requirements. However, irrigation needs will force consideration of management for water of any quality.

RANGE

The Forest has 122 livestock allotments that are managed under one of four levels of management and 14 Wild Horse and Burro Territories that are under extensive management (see Table III-6).

TABLE III-6 WILD HORSE AND BURRO POPULATION AND TREND

Territory	Number Reported 1971	 1981	Trend
Powell Mountain	20	60	Up
Montgomery Pass	185	450	Up
Tierney	51	20	Down
Shoshone	55	71	Up
Burro	13	20	Up
Kelly Creek	10	7	Stable
Northumberland	12	7	Down
Dobbin Summit	44	20	Down
Butler Basin	23	10	Down
Paradise	20	0	Down
Ellsworth	14	0	Down
Monitor	239	280	Up
Toquima	63	35	Down
Toiyabe	33	0	Down

The levels of management applied to range-producing lands are:

1. Range Resource Management - Level A (No Livestock)

   Management excludes livestock grazing to protect other values or eliminate conflicts with other uses.

2. Range Resource Management - Level B (Some Livestock)

   Management controls livestock numbers so that livestock use is within present grazing capacity. Improvements are minimal and constructed only to the extent needed to protect and maintain the range resource in presence of grazing.

3. Range Resource Management - Level C (Extensive Management)

   Management seeks full utilization of forage for livestock. Cost-effective management systems and techniques, including fencing and water development, are designed and applied to obtain relatively uniform livestock distribution and use of forage and maintain plant vigor.

4. Range Resource management - Level D (Intensive Management)

   Management seeks to optimize production and utilization of forage for livestock use consistent with providing for multiple use of the range. From all existing range and livestock management technology, practices may be selected and used to develop cost-effective methods for achieving improved forage supplies and uniform livestock distribution and forage use. Cultural practices such as brush control, type conversion, fertilization, site preparation and seeding of improved forage species may be used to improve quality and quantity of forage. The culural practices may be combined with fencing and water developments to implement complex grazing systems.

Grazing capacity estimates suggest 114,000 AUM's by the 3rd planning decade available for grazing or browsing. Under current management, domestic livestock use is 98,500 AUM's and Wild free-roaming horse and burro use is 4,300 AUM's. Current management direction could, by 2030, increase livestock use to 102,000 AUM's and decrease wild horse and burro use to 4,200 AUM's.

The wild horse population has decreased on 8 of the 14 territories. Since 1971, Northumberland, Tierney, Dobbin Summit, Butler Basin, and Toquima Territories have a 50% or greater reduction in numbers. Since 1973, no wild horses have been observed in the Toiyabe Territory. Since 1980, none have been seen in the Paradise and Ellsworth Territories nor on the adjacent land managed by the Bureau of Land Management. The Montgomery Pass and Powell Mountain herds are in excess of approved management numbers.

The cause of population loss is unclear. Information suggests adequate level of forage exists in each territory to carry a population.

Determination of lands Available, Capable, and Suitable for Range Production.

Range capability is the potential of land to produce resources, supply goods and services, and allow resource uses under an assumed management intensity. Non-productive lands (nonrange) are either barren or have timber stands not capable of producing forage for grazing or browsing animals.

All lands capable of producing forage are available to grazing or browsing animals. Livestock are precluded from lands not suited to grazing or from lands withdrawn for the production of wildlife, watershed, timber, recreation or other values. No lands are legislatively withdrawn. Some lands have been administratively withdrawn. Lands Capable of range production in the Carson Range acquisitions (38M acres) have not been allocated to grazing by livestock except for lands within the Mt. Rose S&G Allotment.

Suitable range is land accessible or made accessible to livestock, which produces forage or has inherent forage-producing capabilities, and can be grazed on a sustained yield basis under reasonable management goals. Transitory range, which is timbered land made temporarily suitable for grazing through fire or as a result of timber management practices, exists on the Forest. However, it does not contribute enough forage to warrant inclusion in the evaluation. The planning assumption made is that commercial timber land is unsuitable for forage production. See Table III-7 for capable, available, and suitable range.

TABLE III- 7 LANDS CAPABLE, AVAILABLE, AND SUITABLE FOR LIVESTOCK RANGE PRODUCTION

	Thousand Acres
National Forest Land	3,170
Capable of Range Production	2,555
Suitable for Range Production	1,133
Available for Range Production	1,124

Pest vegetation includes plants poisonous to livestock, noxious weeds and plants not compatible with human use. A variety of plants poisonous to livestock grow within the Forest: Locoweed, crazyweed, lupine, death camas, orange sneezeweed, and low larkspur. By regulating grazing by livestock, loss is prevented or minimized.

The presence of noxious plants such as musk thistle, whitetop, Russian knapweed, field bindweed, and hologeton causes concern. As a result of disturbances; i.e., livestock grazing, logging, road or trail construction, and wildfire, they become established or spread. The common practice of control is to use a herbicide or mechanical method. To prevent establishment as well as spread, the planting of desirable plants following disturbance is often undertaken. Detection, evaluation and suppression of noxious weeds is done cooperatively with county agencies.

Nettle and puncture vine are not compatible with human use. However, they are not present in sufficient quantities to cause concern.

Future Condition of Rangeland Under Current Management

Sixty percent of the rangeland is in satisfactory condition (fair or better condition class). By 2030, 85% is expected to be in satisfactory condition. This will not meet minimum standards of maintaining soil productivity because of the excessive acreage of unsatisfactory range condition.

Demand Analysis

The demand for grazing exceeds current grazing estimates. Numbers of grazing permits have been increasing at the rate of 5 percent per year. Permittees request reinstatement of permitted use numbers lost because of range condition. Private lands within allotments are being put to other uses. Rangelands on lease properties are being converted to cash crops. It is doubtful that the Forest's ability to produce AUM's will exceed demand.

FISH AND WILDLIFE

The Forest has a variety of game and nongame wildlife and fish species common to the Greater Basin. Of particular interest is the Paiute and Lahontan cutthroat trout. Fish such as brown, brook and rainbow trout, as well as nongame fish, occupy the 1,660 miles of perennial steams on the Toiyabe. Mule deer, desert bighorn sheep and elk (central Nevada and Las Vegas), sage grouse, blue and mountain quail are some of the important game species. In addition to game species, most of the vertebrate species are nongame and provide important social and ecological values. Some of the more interesting and unique nongame wildlife are river otter, pine marten, flying squirrel, Palmer's chipmunk, marsh hawk, spotted owl, Virginia rail, white-headed woodpecker, ruby-crowned kinglet, and the great basin rattlesnake.

Current Wildlife Use (By ten year period)
MWFUDS
Planning Period (Decade)

	1	2	3	4	5
Fisheries	2,742	3,018	3,252	3,252	3,252
Wildlife	1,382	1,498	1,595	1,595	1,595

Threatened and Endangered Species

Two species on the Toiyabe are federally classified as threatened: The Lahontan cutthroat trout and the Paiute cutthroat trout. The Peregrine falcon and the bald eagle, federally classified as endangered, are considered migrants or visitors, using the Toiyabe during migration and in the winter months. Primary efforts in the threatened and endangered program have been to assist and cooperate with the State Fish and Game agencies in the recovery of Lahontan and Paiute cutthroat trout. The Forest plays an important role in the recovery plans for both species of fish, since the Forest historically contained much of the native habitat of Lahontan cutthroat trout and all of the native habitat of Paiute cutthroat trout. Population trend for Lahontan cutthroat trout is stable. The trend for Paiute cutthroat trout is slightly down. Section 7 consultation with USDI Fish and Wildlife Service has been initiated with that agency in both California and Nevada.

Sensitive Animal Species

There are no sensitive animal species in the State of Nevada officially recognized by the Regional Forester. Unofficially the Toiyabe recognized as "sensitive" those species in the document "A Program to Manage and Improve Fish and Wildlife on the National Forest in Nevada".

In R-5 (California), in conjunction with California Fish and Game, the Forest recognized 8 wildlife species that may occur, do occur or historically occurred on the Toiyabe National Forest. For the lands the Toiyabe administers in California (Approximately 700,000 acres) the Toiyabe recognizes the same "sensitive" species as R-5. Those species are:

Sierra Red Fox
California Bighorn Sheep
Fisher
Spotted Owl
Great Gray Owl
Goshawk
Willow Flycatcher
Pine Marten

Sensitive Plant Species

1. Federally-listed Threatened and Endangered Species (U.S. Fish and Wildlife Service List)

   No sensitive species on the Toiyabe National Forest have been officially listed by the U.S. Fish and Wildlife Service.

2. Sensitive-plant species (U.S. Forest Service List)

   Eight California (Carson and Bridgeport Ranger Districts) species and 48 Nevada species are on the U.S. Forest Service, Region 4 Sensitive Plant List (See Table III-16 for complete list of plants considered to be sensitive by the U.S. Forest Service).

3. Baseline data

   The Sweetwater Mountains, including the Wellington Hills, is the only area on the Forest where contract studies have been done on threatened/endangered plants. Central Nevada has had moderate collection on some of the high eleveations of the three major mountian ranges, the Toiyabe, Toquima, and Monitor. With the exception of a few isolated areas, the remaining portion of the Toiyabe National Forest has not been adequately surveyed for threatened/endangered plants.

Big Game Species

The Toiyabe and the Nevada Department of Wildlife are planning to reintroduce bighorn sheep on the Tonopah Ranger District. Elk have been introduced on the Tonopah Ranger District (1979) and other introductions or reintroductions of upland game birds are contemplated on that district.

Two migrating deer herds, the Lassen-Washoe and the Carson-Walker, are impacted by growth and private land development. The loss of winter range and the disruption of traditional migration corridors are problems. To minimize or mitigate the impacts on deer, the Forest has been active in working with the state fish and game agencies to identify key private lands within the Forest boundary for possible acquisition.

Management Indicator Species (MIS)

The NFMA regulations require that the Forest maintain viable populations of all vertebrate wildlife species native to the Forest. In order to implement this requirement, Management Indicator Species (MIS) have been selected to represent the significant ecosystems on the Forest and the associated wildlife that depend upon those ecosystems. These species will be monitored as necessary to meet NFMA requirements. The following criteria were used to select the Management Indicator Species. These species were selected in consultation with the University of Nevada, the Nevada Department of Wildlife, and the California Department of Fish and Game.

1. Threatened or endangered species (federal list).
2. Threatened or endangered species (state list).
3. Considerable concern for species related to laws and regulations.
4. Species for which there are conflicts, concerns, or issues.
5. Species for which the planning area comprises a majority of habitat or use.
6. Species upon which management activities could significantly impact habitat or foreclose future options.
7. Representative species of environmental suitability for other species.
8. Species having significant economic value.

Table III-8 displays MIS, their minimum and maximum viable populations and state requirements. Table III-9 displays habitats associated with the Management Indicator Species, and Table III-10 the Habitat capability for MIS Species.

TABLE III- 8

MIS CAPABILITY

MIS	Minimum Viable	Existing Population	Maximum Potential	Nevada State Objectives	California State Objectives
SIERRA DIVISION					
Hairy Woodpecker	2,500 pair	5,000 pair	22,000 pair	None	None
Pine Marten	800	1,000	2,660	None	None
Yellow Warbler	2,000	3,000	6,000	None	None
Goshawk	21 pair	25 pair	50 pair	15	25
Lahontan Cutthroat Trout	230	230	600	600	600
Paiute Cuthroat Trout	200	200	600	NA	600
Sage Grouse	Unknown	2,300	5,200	5,000	None
Williamson's Sapsucker	1,500 pair	2,400 pair	7,100 pair	None	None
Mule Deer	7,000	12,160	20,000	16,400	16,000 *interstate deer herd
Macroinvertebrates	75 BCI	41 BCI	110 BCI	None	None
CENTRAL NEVADA DIVISION					
Hairy Woodpecker	857 pair	1,430 pair	1,714 pair	None	None
Yellow Warbler	2,000	3,000	6,000	None	None
Goshawk	41 pair	41 pair	77 pair	77 pair	None
Mule Deer	Unknown	9,400	51,413	15,930	None
Lahontan Cutthroat Trout	607 adults 2,393 juv.	607 adults 2,393 juv.	To be det.	To be det.	None
Sage Grouse	9,000	15,000	30,000	24,500	None
Macroinvertebrates	75 BCI	41 BCI	110 BCI	None	None
MT CHARLESTON DIVISION					
Palmer's Chipmunk	4,000	6,600	7,496	None	NA
Yellow Rumped Warbler	4,848	9,292	13,332	None	NA
Williamson's Sapsucker	561	976	1,973	None	NA
Mule Deer	90	300	1,455	1,455	NA
Yellowbellied Sapsucker	600	1,500	2,500	None	NA
Macroinvertebrates	75 BCI	41 BCI	110 BCI	None	NA

BCI - Biotic Condition Index

TABLE III- 9 MIS/HABITAT TYPE

SIERRAS

A. Aquatic

Macroinvertebrates
Lahontan Cutthroat Trout
Paiute Cuthroat Trout

B. Aspen

Hairy Woodpecker
Deer
Goshawk

C. Old Growth (includes snags)

Pine Marten
Goshawk
Williamson's Sapsucker
Hairy Woodpecker
Deer

D. Pinyon-Juniper

Pinyon Jay
Deer

E. Sagebrush (Mt. Brush)

Sage Thrasher
Sage Grouse
Deer

F. Riparian (Springs, Meadows, Willows)

Sage Grouse
Yellow Warbler
Aplondontia (High Sierras)
Deer
Pine Marten
Hairy Woodpecker

CENTRAL NEVADA

A. Aquatic

Macroinvertebrates

B. Aspen

Goshawk
Hairy Woodpecker
Deer

C. Pinyon-juniper

Mt. Chicadee (late succession)
Pinyon Jay
Deer

D. Sagebrush (Mt.Brush)

Green Tailed Towhee
Sage Grouse
Deer

E. Riparian (Springs, Meadows, Willows)

Sage Grouse
Yellow Warbler
Deer

MT. CHARLESTON

A. Aquatic

Macroinvertebrates

B. Aspen

Yellow-bellied Sapsucker
Yellow-rumped Warbler
Deer

C. Old Growth (includes snags)

Williamsons' Sapsucker
Deer
Palmer's Chipmunk

D. Pinyon-Juniper

Pinyon Jay
Panamint Chipmunk
Deer

E. Sagebrush

Sage Sparrow
Deer

F. Riparian (Meadows, Springs)

Palmer's Chipmunk
Deer

TABLE III-10

MIS HABITAT CAPABILITY

SIERRA DIVISION

MIS HABITAT TYPE	ACRES/MILES OF HABITAT	HABITAT QUALITY	DISTRIBUTION	TREND POPULATION AND VEGETATION
Aquatic				
Macroinvertebrates	1164 miles of stream	Medium - Low	Forest Wide	Stable
Lahonthan Cutthroat Trout	25 miles of stream	Low	Sierra and Central Nevada Wide distribution but limited population and limited waters.	Stable
Paiute Cutthroat Trout	9 miles of stream	Low	Very limited silver king drain age Carson R.D. only.	Down
Old Growth				
Pine Marten	50,000 acres	Varies excellent to unsuitable	Wide distribution in Sierra but limited to mature/old growth timber stands.	Stable
Goshawk	16,000 acres	Varies excellent to unsuitable	Forest Wide. Limited to mature old/growth Forest. (Aspen and Conifers)	Stable to down
Snags				
Williamsons Sapsucker	40,000 acres	Low-Quality snags poorly distributed	Wide distribution in Sierras.	Stable
Hairy Woodpecker	30,000 acres	Low-Quality snags poorly distributed	Forest Wide	Stable
Riparian				
Sage Grouse (also represents sagebrush habitat type)	249,000 acres	Low	Sierras and Central Nevada. Wide distribution but	Down
Mule Deer (also represents other habitat type)	749,960 acres CA. + NV.	Low	Forest Wide	Stable to down in Sierra
Yellow-Warbler	1500 acres	Medium	Forest Wide	Stable

CENTRAL NEVADA DIVISION

MIS HABITAT TYPE	ACRES/MILES OF HABITAT	HABITAT QUALITY	DISTRIBUTION	TREND POPULATION AND VEGETATION
Aquatic				
Macroinvertebrates	495 miles of Stream	Medium - Low	Forest - Wide	Stable
Lahonthan Cutthroat Trout	27 miles of stream	Low	Limited Reese River Drainage	Stable to up
Riparian				
Sage Grouse (also represent sage brush habitat type)	(2,419 sq. mi.) 1,548,000 acres	Medium - Low	Wide	Stable to slighly down
Mule Deer (also represent other habitat type)	1,650,000 acres	Medium	Wide	Stable to up
Yellow Warbler (willow)	1,500 acres	Low	Wide very specific habitat requirements	Stable
Goshawk (Aspen)	12,300 acres nesting habitat	Medium	Wide	Stable
Snags				
Hairy Woodpecker (also represents old growth aspen and riparian	10,000 acres	Medium	Widely distributed	Stable

MT. CHARLESTON DIVISION

MIS HABITAT TYPE	ACRES/MILES OF HABITAT	HABITAT QUALITY	DISTRIBUTION	TREND POPULATION AND VEGETATION
Aquatic				
Macroinvertebrates	1.5 miles	Medium	Limited to Perenial streams	Stable
Old Growth Palmers Chipmunk (also represents riparian springs)	33,000 acres	Medium	Moderately widespread on Mt. Charleston	Stable
Snags				
Williamsons Sapsucker (also represent old growth)	16,500 acres	Medium	Moderately widespread	Stable
Yellow-bellied sapsucker (also represents riparian)	15,000 acres	Medium	Moderate	Stable
Riparian				
Yellow-rumped Warbler	23,000 acres	Medium	Moderate	Stable
Mule Deer	57,000 acres	Medium	Forest Wide	Stable

State Fish and Wildlife Objectives

The primary agencies that relate to the wildlife objectives on the Toiyabe are the Nevada Department of Wildlife and the California Department of Fish and Game. In accordance with with Public Law 93-452 (Sikes Act), which provides for cooperation in fish and wildlife habitat programs on federal land between state and federal governments, a program for managing fish and wildlife was developed for National Forest lands in California and Nevada. These documents contain the goals, objectives and an "Action Plan" for the respective state wildlife agencies and the Forest Service.

California - The primary thrust of the plan is to maintain a wide variety of fish and wildlife species that will meet the needs and desires of the people and be compatible with other resource uses on National Forest lands in California.

The specific goals of the plan are to: (a) produce more fish and wildlife on National Forest habitats through direct habitat improvement and coordination with other Forest resource programs; (b) intensify fish and wildlife protection and management activities to maintain and enhance existing populations; (c) improve and sustain the ecological diversity of the present Forest environment; (d) fully realize the recreational potential and related economic benefits derived from fish and wildlife resources.

Nevada - The primary purpose of this plan is to develop a management program to maintain and improve the habitats of the wildlife and fish species found on National Forest lands to meet the needs of the people and still be in harmony with the other resource uses.

Goals of this plan are to: (a) produce optimum numbers of fish and wildlife on National Forest lands through improving the ecological diversity of the present forest and range environment; (b) intensify fish and wildlife habitat management on the National Forests in Nevada; (c) improve fish and wildlife habitat through coordination with all resource programs and direct habitat improvement; (d) maintain or increase the area's recreational potential and related economic benefit's; (e) involve the Nevada Department of Wildlife, Forest Service, Bureau of Land Management, and the Fish and Wildlife Service in developing and activating a coordinated wildlife and fish management program for the State of Nevada; (f) place special emphasis on the management of habitats for endangered or threatened wildlife species in accordance with the Endangered Species Act of 1973 (PL 93-205).

Fish and Wildlife Habitat Management

Emphasis in wildlife habitat management has been (1) improving habitat through pinyon-juniper removal, (2) stream habitat improvement for Lahonton and Paiute cutthroat trout, and (3) restoring key meadow and riparian habitats through use of human resource programs such as the Youth Conservation Corps. The introduction of elk in central Nevada was made possible by the habitat improvement work accomplished through human resource programs. The loss of human resource programs has sharply curtailed the Forest's ability to complete and maintain labor-intensive habitat improvement projects the last few years. The Forest has improved 700 to 800 acres of habitat annually through vegetative manipulation and constructed an average of 6-10 wildlife improvement structures and 2-5 fish improvement structures for threatened and endangered species annually.

Fish and Wildlife Use

Some decrease in hunting may be taking place because Nevada (1976) and California (1978) have changed their system for allocating deer tags. Nevada indicates the request for deer tags is significantly greater than tags available. Since their program is succeeding in producing quality animals and a quality hunting experience, the future need will likely increase even more rapidly. California is not presently turning away deer hunters; however, in some areas on the Toiyabe, the Department is seriously contemplating limiting hunters. California Department of Fish and Game records show a slow but steady increase in deer hunters on the Toiyabe National Forest within California.

Data for the past 10 years indicates an overall increase in fishing use on the Carson and Bridgeport Ranger Districts, while central Nevada has experienced a significant increase in the last 10 years. California Department of Fish and Game indicated that, with the exception of years 1974 and 1975, there has been a slight but steady increase in fishing demand. California Fish and Game also indicates the increase is expected to continue and peak, then stabilize before 2020. Nevada Department of Wildlife reports similar use, exept the use is not expected to peak and stabilize prior to 2020.

The need for other fish and wildlife activities is expected to increase more rapidly. Trapping activities for fur-bearers, such as coyotes and bodcats, have increased significantly. Applications to hunt bighorn sheep far exceed quotas in Nevada. Sage grouse hunting seasons are severely restricted because the use far exceeds the resource. Projections to the year 2000 in Nevada for sage grouse, bighorn sheep and some other species, are down. Human use of nongame wildlife, such as bird watching and photography, as evidenced by the increased growth in memberships of wildlife and nature groups, indicates these activities will increase. Many fish and wildlife species are expected to decline, while there are other species where increased population is expected. Even with projected increases in population of some species, such as deer and antelope, it is not expected that the state wildlife agencies can meet the consumptive and nonconsumptive public use.

Diversity

The Toiyabe is one of the west's most diverse Forests in regards to habitat types and animal species. Overall diversity will be the same although there will be more younger timber stands and less mature old growth.

MINERALS AND ENERGY

Availability

The Forest has extensive mineral resources. Although energy resources have not been developed, a moderate potential exists for production of oil/gas, geothermal, and uranium resources.

With very minor exceptions, all minerals within the Toiyabe are owned by the United States and are subject to disposal under three categories--locatables, leaseables, or common variety. Public domain lands, unless withdrawn, are open to mineral exploration and development under the mining laws. Acquired lands are generally open only to leasing, unless such lands were acquired by exchange for other public domain lands. These acquired lands have public domain status and are subject to claim under the Mining Law of 1872.

There are several withdrawals within the Forest that prohibit location under the mining laws. Some also disallow operation under the leasing laws. See Table III-11 for land open or withdrawn to mineral/energy activities.

TABLE III-11 LANDS OPEN AND WITHDRAWN TO MINERAL/ENERGY ACTIVITIES ON THE TOIYABE NATIONAL FOREST

DISTRICT	TOTAL ACREAGE	WITHDRAWN FROM MINING (ALL AGENCIES)	OUTSTANDING OR RESERVED MINERAL RIGHTS	TOTAL LANDS OPEN TO MINING AND LEASING
D-1 Carson City	325,070	18,320		306,750 1/
D-2 Bridgeport	846,475	25,357	920	820,198
D-3 Austin	1,000,885	2,667		998,218
D-4 Tonopah	941,236	3,412		937,824
D-5 Las Vegas	58,039	1,793		56,246
Total	3,171,705	51,549	920	3,129,236 1/

1/ Approximate Acres

The policy of the Toiyabe National Forest regarding minerals and energy resource management conforms with national policy and objectives, applicable laws, and regulations.

Locatables

Approximately 10,500 mining claims have been staked and recorded (FLPMA) within the Forest. Actual number could exceed 15,000 claims. The general geographic breakdown of recorded claims follows: As of 1981.

Sierra Nevada	2,900 claims
Central Nevada	
Paradise Range	1,100 claims
Shoshone Range	700 claims
Toiyabe Range	1,300 claims
Toquima Range	4,400 claims
Monitor Range	100 claims
Mt. Charleston	
Total	10,500 claims

Ending Fy 1981, there were 252 active operating plans pursuant to 36 CFR 228 on the Forest. The general geographic breakdown of the active operating plans follow 1/:

Central Nevada	186 operating plans
Sierra and adjacent lands in Mineral County, Nevada	66 operating plans
Las Vegas	0 operating plans
Total	252 operating plans

1/ Data is displayed on maps in the Forest Supervisor's office.

Operating plans submitted have increased at approximately 50 percent per year during the last 5-year period.

There are a total of 15 producing mines, with an estimated annual project value of approximately 150 millions dollars. During 1981, the most active year in locatables on the Forest, 87 miles of road were constructed for mining and mine access. To date, 44 special use road permits related to mining roads exist. Mineral products create the greatest cash flow of any resource on the Forest.

By 1986, it is expected there will be 19 mines on the Forest, producing an estimated 379 million (1981 dollars).

Gold - Most of the gold being mined on the Toiyabe is being mined from large, near-surface, low-grade disseminated gold deposits. The mining is being done by open pit mines methods. It is estimated that some 25,600 troy ounces of gold were produced from 8 mines on the Toiyabe during 1981, with a total value of 11 million dollars. By 1986, it is estimated that 429,000 troy ounces will be produced from 10 mines on the Forest.

Silver - Most of the silver produced from the Toiyabe is being produced in conjunction with gold mining operations. It is estimated the 7 mines will produce 670,00 troy ounces of silver from the Toiyabe during 1981. By 1986, it is estimated that 10 mines will be producing 4,321,000 troy ounces from the Forest.

Barite - During 1981, it was estimated that 350,000 short tons of barite were produced from the Toiyabe. This amounts to a little over 10% of the total barite consumed in the U.S. during 1981. Nearly all production came from two large open pit barite mines located in the Northnumberland Mining District of central Nevada. Product value amounted to approximately 56 million dollars. Demand for barite is tied to the oil and gas economy and recently the market has been depressed. Nearly all the barite will come from near-surface, bedded deposits employing open pit mining methods.

Magnesium Compounds (Magnesite and Brucite) - One large open pit mine on the Forest in central Nevada (Gabbs, Nevada) produces an estimated 300,000 short tons of magnesite and brucite per year. Production is expected to remain constant through 1986. Estimated product value for 1981 was in excess of 62 million dollars.

Iron - The Forest has one small iron mine located in central Nevada. The mine produces an estimated 2,000 long tons of iron ore per year which is used in the basic refactory industry in Gabbs, Nevada. Production is expected to remain around 2,000 long tons per year through 1990.

Molybdenum and Tungsten - Prospecting and exploration for these two commodities is expected to remain strong through 1986. No properties on the Forest are expected to come onto production before 1986. However, potential exists within the Paradise Range for a major mine if additional reserves are located.

Uranium - Exploration on the Forest was strong up to 1981, but has fallen off dramatically due to environmental and safety concerns associated with the use of nuclear fuels for energy production, the mining of uranium ore and the handling and disposal of nuclear waste. No properties on the Forest are expected to come into production in the future.

Gemstones - Turquoise, variscite, tourmaline, beryl, agate, picturestone, and quartz crystals are found on the Forest. Production, if any, is very small, mainly from amatuer rockhounds and collectors. Even though the demand for high-quality gem stones is increasing, no large commercial mines are expected to come into production on the Forest before 1986.

Leaseables

Oil and Gas - There are 50 oil and gas leases or leases pending within the Forest. These include 30 leases in central Nevada and 20 on Mt. Charleston. None exist in the Sierra Nevada. Oil and gas leases total approximately 77,000 acres. There have been no operating plans submitted nor has any work been conducted. The nearest activitity in oil and gas exploration is in Railroad Valley, 75 miles east of Tonopah and in Las Vegas Valley near Mt. Charleston. Exploration wells have been staked in Fish Lake Valley east of the Monitor Range.

Geothermal - There are 21 geothermal leases or leases pending within the Forest, totaling approximately 47,000 acres. These are evenly distributed between the Sierra Nevada Districts and central Nevada. No active drilling has occurred under any lease, although a few gradient temperature wells have been drilled under prospecting permits in Smokey Valley and on the Bridgeport District.

Coal - There are no coal reserves known on the Forest. The potential for coal being found and produced on the Forest is very remote.

Common Variety

Sand, building stone, and gravel are considered as common variety or salable mineral material. These materials are normally dispersed to private parties by competitive or noncompetitive sales. In 1981, the Forest had 16 common variety mineral material permits. Probably less than a thousand dollars worth of mineral was produced from the Forest during 1981. With increased development on or adjacent to the Forest the demand for sand, gravel, and building stone will increase. The number of common variety mineral material permits is expected to increase to 19 in 1986.

HUMAN AND COMMUNITY DEVELOPMENT

The Toiyabe has participated in the following Human and Community development programs.

- Youth Conservation Corps (YCC) is an annual non-resident program for youth 19 years and younger. This program averages 8 students for 8 weeks each Summmer doing conservation work.
- Senior Citizens (SCSEP)- 30 people over 55 years of age are employed in areas of clerical, warehousing, maintenance, and recreation work.
- Job Partnership Training Act. This is a cooperative program with the counties. Forest Service provides 50% of the salary and the projects, while the county funded by the Department of Labor provides the rest of the salary.
- DECA - This is a "stay-in-school" program to provide work experience for high school students.
- Volunteers - The Forest has upwards of 800 volunteers working on a variety of projects such as trail construction and maintenance, watershed work, and recreation maintenance.

Other Cooperative programs include participating with the Job Corps Center in Reno, Nevada Division of Forestry Inmate Conservation Crews, and the Spring Mountain Youth Camp near Las Vegas. Work performed by these crews includes fire fighting, reforestation, thinning, recreation, and trail maintenance.

SUPPORT ELEMENTS

LANDOWNERSHIP AND LAND USES

The gross acreage within the Toiyabe National Forest boundary, excluding the LTBMU, is approximately 3,326,966 acres, of which approximately 155,261 acres are in nonfederal ownership. Most nonfederal lands are within the Sierra Nevada division of the Forest. The pattern of the land ownership often creates problems for the nonfederal land owner, as well as the Forest Service.

In addition to nonfederal land ownership, there are approximately 700 special use permits encumbering 90,000 acres of National Forest system lands. Approximately 70% of these permits are on the Carson and Bridgeport Ranger Districts. These permits include ski areas, resorts, developed homesites, research, transportation, utilities, and other uses. The length of the tenure varies from annual renewals to 30-year permits subject to renewal. Utility corridors are a significant existing and potential use within the Sierra Nevada Range. Current policy for utilities is to minimize additional impacts and proliferation of separate rights-of-way to the extent practical.

An additional 53,000 acres of National Forest system lands are encumbered by some 150 withdrawals. These withdrawals include administrative sites, recreation sites, reclamation projects, research natural areas, stock driveways, and archeological sites. The form of withdrawal varies by site, but nearly all are at least withdrawn from mineral entry, while most are also withdrawn from all forms of appropriation under the public land laws.

A significant limiting factor in resource outputs is the lack of public and administrative access to National Forest system lands where no right-of-way easement exists through nonfederal lands. Often roads that have been open to the public for years without rights-of-way are being closed as these properties are sold or developed. It is estimated that there are over 200 miles of rights-of-way needed on existing roads with over 175 separate owners to deal with to acquire those rights-of-way easements. An additional 30 miles of trail exists across private land, also without rights-of-way.

The Forest has over 3,700 miles of property line; roughly 1,800 miles of exterior Forest boundary and 1,900 miles of interior boundary. Less than one percent of the property line is posted to standard. To locate and post to standard the 3,700 miles of property line would require over 14,000 corners. Less than 1,600 corners are currently established. In addition, there are about 60 townships which are unsurveyed and either partially or wholly within the National Forest. Some of these townships need to be surveyed in order to establish controlling corners to determine property boundaries.

A further limitation on resource outputs is high density development adjacent to the National Forest and possible unauthorized occupancy of National Forest system lands. At this time, there is not an inventory of unauthorized occupancies. It will be necessary to systematically survey and post to standard all property boundaries where National Forest system lands abut nonfederal ownerships to accurately determine the extent of unauthorized occupancy.

Currently there are few lands within the Toiyabe National Forest boundary identified for disposal by land exchange. The primary exchange base for disposal of federal lands have been lands managed by the Bureau of Land Management (BLM) located outside of the Forest boundary. Las Vegas BLM-managed lands have been particularly popular for proponents to acquire because of high values and rapid development opportunity and thus ease of sale.

Many lands in private ownership are, or have the potential for, being developed into subdivisions. Privately owned lands that are developed within the Forest often result in demands on the Forest for roads, power lines, telephone lines, water, and sewer facilities. Secondary impacts on National Forest system lands include increased fire danger, loss of wildlife habitat, decreased opportunity for use of National Forest system lands, and often loss of public access through the private lands to get to public lands.

Disposal of lands surrounding existing communities and subdivisions would be desirable in some areas to allow for the orderly growth of these population centers.

SOILS

A wide variety of different kinds of soils occur because of wide variations in geology, climate, topography, and vegetative communities. The Forest has a range of soils supporting salt desert shrubs to subalpine vegetation. This is typical of the Great Basin Physiographic Province.

Soil productivity in the Toiyabe National Forest is associated with maintaining productive soil surface horizons. Soil erosion, except in special instances, is not severe, due, in part, to winter-wet/summer-dry climate.

The majority of soils here are within erosion tolerance limits under present vegetative conditions. The exceptions are from areas of riparian areas in poor and very poor condition. However, any significant mechanical or other disturbance at the soil surface may lead to extensive erosion characteristics.

Management has been such that most of the soil-related problems are minimal. When soil and water values have been given adequate consideration and constraints have been adequately implemented, roads and trails, timber harvest techniques, range and wildlife management practices have generally been successful.

For the most part, landscapes of the Forest are stable and have been stable for thousands of years. Mass failure, either natural or man-induced, has not been a significant problem on the Toiyabe.

A present concern is that the increasing demands for National Forest resources, particularly timber and minerals, are forcing management activities onto the more sensitive landscape; i.e., steep slopes, high erosion hazards, and low soil loss tolerance limits. Many of these less accessible and more sensitive areas also posess high recreation, wildlife, and water values, thus requiring intensive soil and water resource survey, evaluation, and monitoring in conjunction with project implementation. The greater use of sensitive sites is requiring more intensive soil and water resource evaluation to protect these values.

Soil resource inventory of the remaining portion of the Forest will record soil location and extent, with interpretations, to better determine capability, limitations, and hazards for various land management practices.

Watershed areas in need of improvement have been preliminarily quantified in the Forest's watershed improvement needs inventory for most readily identifiable gully and road-related erosion problems. These problems consist primarily of active gullies in high elevation, highly productive meadow lands; and gullies associated with roads and trails. The inventory also indicates approximately 110 miles of more obvious degraded stream channels.

Geologic Hazards

Identified geologic hazards on the Toiyabe are few, though there is evidence of past fault zones and slump areas.

There is, however, a great potential for earth movement on the Toiyabe. Conditions condusive to mass movement, such as clay soils and steep slopes, do occur.

The Mammoth Caldera on Inyo National Forest Lands could impact the Toiyabe with ash deposits in the event of an eruption. If an eruption occurs, the emergency Response Center would be headquartered at Bridgeport.

Excessive Soil Erosion

Natural erosion rates on the Forest are generally low under present vegetative conditions. Any practices allowing the soils to remain bare for any significant time period does lead to significant erosion. Significant erosion refers to soil erosion potentials that exceeds soil loss tolerance values.

In general, areas of the Sierra Front having soil developed from granite rock sources have the lowest erosion tolerance limits and highest erosion hazard ratings.

FACLITIES

The Toiyabe National Forest has a variety of facilities including roads, trails, bridges, dams, ski lifts, administrative sites, buildings, and water and sewer systems; all of which provide for the development and use of the Forest resources. Facilities represent a large capital investment requiring significant amounts of time and money for operation and maintenance.

Structures and Bridges

The total number of buildings existing on the Forest is 67. The total includes: 8 warehouse buildings, (2 are leased), 12 office buildings (5 are leased), 9 special purpose buildings and 38 structures for housing government employees. In general, the condition of these structures is safe and livable with continued maintenance and upgrading to correct safety hazards

The total number of bridges in the Forest is 30 (3 are trail bridges). In general, these bridges are safe and well maintained.

Roads

The present Forest system has nearly 3,300 miles of Forest development roads. These roads were constructed and are maintained by a number of federal, state, and local agencies or by individuals under permit. Many of the existing roads on the Forest are inadequate, present problems from a maintenance and watershed standpoint. Approximately 25% of the system has been functionally classified as arterial-collector. Most of the arterial-collector system is under county jurisdiction. Analysis of the transportation system is in the initial stage of the inventory data and information collection phase. Revision and updating of the Forest Transportation Plan and Inventory is in process.

The majority of the road system evolved from primitive roads or trails. Many were located prior to the establishment of the National Forest. A small percentage of the roads on the Forest have been "engineered." These are primarily in support of timber sales and recreation. Roads exist on the Forest which have not yet been inventoried and included in the development system. These are attributable mainly to two sources: (1) unauthorized off-road-vehicle (ORV) use, and (2) mining.

Roads built for mining exploration and other permitted use are the major contributors adding miles to the system. In FY 1981, approximately 90 miles were constructed under special use permits or operating plans for mineral exploration alone. About one-quarter to one-third of these miles ultimately become inventoried and included in the development plan. The remainder are closed or obliterated after the mining operation. Only those mining roads that are needed for National Forest management as described in the Forest Transportation Plan are placed in the system.

Approximately 72% of the development system is classified as primitive. These are fair weather roads, open intermittently for mostly pickup travel. However, some roads are suitable only with four-wheel drive vehicles even in fair weather conditions. Approximately 27% of the development system is classified as graded and drained, which is suitable for passenger car travel most of the year. The remaining 1% of the development system is surfaced or paved. Paved roads are either in campground facilities or administrative sites.

Forest Service Road construction or reconstruction activities are concentrated almost entirely in support of the timber sale program, and recreation development.

The designated Forest Highways are listed in Table III-12. These highways are planned and developed cooperatively with State(s) Department of Transportation and the Federal Highway Administration.

TABLE III-12 FOREST HIGHWAYS

California

1. Route 125 - Heness Pass. Road in the Summit one to Summit two area of Dog Valley.
2. Route 133 - Verdi - Long Valley road through Dog Valley.
3. Route 134 - BLue Lakes Road in Alpine County. From US 88 to Blue Lakes.
4. Route 135 - Twin Lakes highway in Mono County. From US 395 to Mono Village.

Nominated For Inclusion as Forest Highways

1. Green Creek Road in Mono County - From US 395 to end of the road.
2. Virginia Creek Road in Mono County - From US 395 to end of the road.

Nevada

1. Route 2 - Mt. Rose Highway in Washoe County. From US 395 to state highway 28.
2. Route 16 - Kingsbury Grade in Douglas County. From Foothill road to Dagget Pass.
3. Route 25 - Dog Valley. From Interstate 80, bypassing Verdi, to the Dog Valley road. This road ties in with Route 133 in California.
4. Route 11 - Kyle Canyon in Clark County. From US 95 to Charleston Peak.

5. Route 20 - Lee Canyon in Clark County. From US 95 to the Lee Canyon Ski area.

6. Route 22 - Deer Creek highway in Clark County. From Lee Canyon to Kyle County.

Nominated For Inclusion as Forest Highway

1. Forest Service Road # 20014 - Manhattan to Monitor Valley Road (State highway 82) - Nye County.

Trails

There are nearly 1,021 miles of system trails within the Toiyabe National Forest. In addition, it is estimated there are several hundred miles of non-system trails which are not inventoried. Most of these non-system trails (as well as many of the system trails) were developed many years ago through various historical activities, such as prospecting and mining, and sheep and cattle grazing. Now most are used only as game trails and are gradually reverting to a natural state.

Many trails, especially in central Nevada, are only occasionally used. Predominate use is for grazing management or hunting. In the Sierra and the Las Vegas Divisions, recreation use is significantly heavier, justifying higher levels of maintenance for most trails.

Nevada's Statewide Comprehensive Outdoor Recreation Plan (SCORP) recognizes that central Nevada has an abundance of trails which are a potentially invaluable but underused recreation resource.

In contrast, SCORP recognizes that in western Nevada there is a general lack of certin outdoor recreation facilities, including easy access to trails. This is especially true in the Carson Range. Close-in trail heads and feeder trails are in short supply in the Reno-Sparks-Carson City vicinity.

There are three existing trails of national status on the Toiyabe, with a total of 145 miles. They are the Pacific Crest National Scenic Trail (approximately 70 miles is found within the Carson and Bridgeport Districts), the Toiyabe Crest National Recreation Trail (approximately 67 miles in central Nevada, on the Austin and Tonopah Districts), and the Mt. Charleston National Recreation Trail (approximately 8 miles, on the Las Vegas District).

Two proposed trails of national status which would cross the Forest are in preliminary stages of planning. Both would be interstate trails. The Western States Trail crosses the Forest near Mt. Rose and drops off the Carson Range to Washoe Valley. The other, the High Desert Trail, would traverse central Nevada, running from Oregon into southern California.

All trails on the Toiyabe are surfaced with native material with one exception, the Las Vegas District's Desert View Handicapped Trail, one-tenth mile long, with bituminous paving.

Transportation and Utility Corridors

Growth in Nevada, particularly the eastern slope of the Sierra, has brought an increasing demand for energy and communications. New power-generating plants are planned throughout the west, including Nevada. These new plants will require construction of power transmission lines across National Forest lands. A similar situation occurs with the need for electronic sites. They impact mountain peaks which are highly sensitive environmentally. Usually desirable sites are on the most prominent peaks and in highly controversial areas. Concerns shared by both the public and Forest Service are the reduction of productive lands and impacts on visual quality due to construction.

The Forest has identified transportation and utility corridors and rights-of-way within them. These have been reviewed to determine which will be retained, expanded, or deleted.

The first priority is to expand existing corridors and sites to utilize their maximum capacity within environmental and site limits. This will be done before any new corridors or sites are opened. The Western Regional Corridor Study with proposals to 1990 will be used in the evaluation to determine future needs.

PROTECTION

The Toiyabe National Forest presents a highly complex protection situation. Several areas--Mt. Charleston (Las Vegas District), the Walker Range (Bridgeport District), and the Sierra Front (Carson and Bridgeport Districts)--are of major concern, primarily due to the intermingling of wildlands and urban developed areas. Within these areas there exists a mixture of public and private lands, both considered highly valuable. Public lands are prized for resources such as water and their natural beauty. Private lands have been developed extensively, and many developments are valued in the millions of dollars. Other areas of the Forest are also experiencing an increase in human impacts requiring increased protection emphasis. Considering terrain, the continuing development and change of Forest fuels, weather, access, and increasing costs of suppression forces, there is reason to believe that the fire problem will continue.

The Sierra

The most active fire area is the Sierra. Most emphasis in terms of organization and suppression forces is directed here. The area has become increasingly impacted by urban development, recreational use, and timber harvest (including fuelwood gathering). The area also includes three designated wilderness areas. An inter-agency helicopter is based at Bridgeport, California. The following is a statistical breakdown of fire activity for the 10-year period 1970-1979:

1. Fires

Fire by Cause		Fire by Time of Year	
Human Caused	274	Jan. - May	56
Lightning Caused	792	June - Sept.	935
		Oct. - Dec.	75
Total Fires	1,066		1,066

2. Size Class Distribution

A	B	C	D	EFG
1/4 Ac/less	2/5 Ac-9 Ac.	10-99 Ac.	100-299 Ac.	300 + Ac.
942	102	10	5	7

3. Acres Burned - 1970-1979

Human Caused	2,750
Lightning Caused	3,202

Statistics indicate that 74% of fire activity in this area is related to the active summer thunderstorm periods.

Generally, fire occurrence in the analysis period has decreased. The period 1970-1974 averaged 120 fires, while the 1975-1979 period averaged 92 fires. Increased and improved prevention programs have contributed to maintaining a consistent number of human-caused fires. For the first 5 years of the analysis period, the Sierras averaged 26 human-caused fires and in the last 5 years, 28. This area has received a major increase of public use during this decade with people impact. A reduction in prevention programs would likely result in a significant increase in human-caused fires.

Fire occurance since 1979 has not been typical of that during the decade. More than 7,000 acres have burned, much of which was near man-made developments with a signigicant potential for loss of life and property.

Central Nevada

Central Nevada has not posed significant fire management problems in the past. The area has seen little developmental change in recent years, the main increase being mining activities in the past few years. Fire occurrence has not been significant, but a few major and troublesome fires have occurred.

1. Fires (1970-1979) Period

Fire by Cause	
Human Caused	32
Lightning Caused	67
Total Fires	99

Fire by Time of Year	
Jan. - May	4
June - Sept.	90
Oct. - Dec.	5
	99

2. Size Class Distribution

A	B	C	D	EFG
1/4 Ac/less	2.5 Ac-9 Ac.	10-99 Ac.	100-299 Ac	300 + Ac.
64	25	7	1	2

3. Acres Burned - 1970-1979 Period

Human Caused	1,191
Lightning Caused	151

Mt. Charleston

Mt. Charleston is another area subjected to critical increases in urban wildland interface. Wildlife within the two developed canyons, Kyle and Lee, is of major concern. The district has had a few large fires (largest 6,400 acres in 1981) and is the only area of the Forest where human-caused fires outnumber lightning-caused fires.

1. Fires (1970-1979)

Fire by Cause		Fire by Time of Year	
Human Caused	228	Jan. - May	13
Lightning Caused	85	June - Sept.	163
		Oct. - Dec.	27
Total Fires	203		203

2. Size Class Distribution

A	B	C	D	EFG
1/4 Ac/less	2/5 Ac-9 Ac.	10-99 Ac.	100-299 Ac.	300 + Ac.
181	18	2	2	0

3. Acres Burned - 1970-1979 Period

Human Caused	538
Lightning Caused	14

Human-caused fires during the 1970's made up 58% of the total. While 56% of all fires occurred during the first 5 years, there was an equal distribution of Class C or larger fires. The most significant change during the period was one of increased recreation use of the mountain, which maintains the high number of human-caused fires.

AIR QUALITY

Pollution of the air resulting from Forest or range management activities is not a critical problem on the Toiyabe. Wildfire is a significant contributor to air pollution through summer and early fall. At present no air quality index or visibility baseline data exists for the Toiyabe. The only Clean Air Act Class I area is the Hoover Wilderness with 39,094 acres on the Toiyabe N.F. and 9,507 acres on the Inyo N.F. Air quality monitoring and activities affecting air quality within the Hoover wilderness need to be coordinated with the Inyo National Forest. The remaining area within the Forest is classified Class II.

Prescribed burning has occurred away from urban development and at high elevations. As a temporary emission source, it does not significantly deteriorate ambient areas. Prevailing westerly and southwesterly winds contribute to good smoke dispersal. Burning activities are associated with logging and fuelwood slash removal and range and wildlife habitat improvement. Prescribed fire is regulated by the Clean Air Act as amended in 1977, state requirements, EPA and regulations, and Forest Service Manual Guidelines. Slash disposal by prescribed burning is often the most cost-effective treatment method. However, a reduction in the amount of slash burning may occur as the Forest anticipates additional utilization of logging slash for fuelwood.

Prescribed fire to enhance the diversity of Forest and range ecosystems will continue, as it remains the most cost-effective and energy-efficient treatment method in most cases. Increased prescribed fire will occur in suitable areas of the Forest.

LAW ENFORCEMENT

The Forest Service is responsible for the enforcement of federal laws and regulations as they relate to the National Forest System. This responsibility cannot be delegated to any other agency or local law enforcement entity.

The Forest Service is authorized to cooperate with state and local agencies for the enforcement of certain state laws, and is also permitted by law to reimburse state and local entities for protection of the public activities on national Forest lands. The Forest Service will assist state agencies in all ways that are practical in the enforcement of the laws of the state concerning livestock, the prevention and suppression of Forest fires, and the protection of fish and wildlife. The primary goal of law enforcement is the prevention of violation of laws and regulations. The Toiyabe has 6 cooperative law enforcement agreements with local law enforcement agencies.

Both federal and state violations of law occurring upon the Toiyabe National Forest have greatly increased since 1975. The mid-1970's marked the onset of substantial population growth within Nevada.

Theft of timber is by far the most significant law enforcement problem on the Forest. Estimates of theft are in the millions of board feet, with cost figures of loss and resource damage conservatively placed around $100,000. Considering the continuing energy shortage and high fuel costs, it can be assumed that this problem will only increase in the future. Prevention efforts and more coordinated timber practices must be implemented as part of an overall solution.

One of the concerns that has steadily increased over the past few years is assault or threats against Forest employees. During FY 1979-81, there were eight incidents of assault upon Forest officers. Most were not serious enough to be considered a felony offense.

Vandalism and theft of government property, including accountable items, is another significant problem existing in the Forest. Fire-related offenses, both those due to negligence and those of specific intent; i.e., arson, are relatively high upon the Forest. The Carson Ranger District has been ranked first within the Intermountain Region with respect to arson forest fires for the past several years. In FY 1970-81, the Carson Ranger District determined six arson-set fires.

FOREST INSECTS AND DISEASES

The principal insects and disease affecting the Toiyabe NF are Jeffrey pine beetle, mountain pine beetle, western pine beetle, roundheaded pine beetle, dwarf mistletoe, root and heart rots, and Elytroderma needle disease.

Jeffrey pine beetle is the most destructive pest of Jeffrey pine. Epidemics of this beetle have cycled through the host type for many years, with the current outbreak starting in Dog Valley in the early 1970's. By 1978, widely scattered tree killing occurred throughout the host type from Mount Ina Coolbrith, northwest of Reno, south to Bridgeport.

Mountain pine beetle has been killing ponderosa and lodgepole pine in the Lake Tahoe Basin since the 1950's. Current infestations are causing group tree mortality along the eastern shore of Lake Tahoe.

Western pine beetle has been killing ponderosa and lodgepole pine in the Lake Tahoe Basin since the 1950's. Current infestations are causing group tree mortality along the eastern shore of Lake Tahoe.

Western pine beetle has been active in the ponderosa pine type on Charleston Mountain since 1952. Mature and overmature ponderosa pine in the Spring Valley Mountain were killed by roundheaded and western pine beetles following a drought in 1966. This infestation continued through 1973 and caused heavy losses in developed recreation sites.

Douglas-fir tussock moth reached outbreak proportions in two isolated areas of southern Nevada in 1972. Heavy defoliation of white fir stands occurred near a Boy Scout Camp in the Spring Mountains and on sixty acres in the Virgin Mountains. The outbreaks declined by 1974. Some heavily mistletoed trees succumbed from heavy defoliation and bark beetle attacks.

Dwarf mistletoe causes significant losses to infected stands. A roadside survey of the Toiyabe National Forest in 1978 indicated that 35% of the ponderosa pine and Jeffrey pine and 17% of the Lodgepole pine types were infested with dwarf mistletoe. White fir is also heavily infected by dwarf mistletoe throughout the Forest. In addition to causing significant losses in commercial timber stands, dwarf mistletoe infection can have severe impacts on trees in recreation sites. Heavily infected trees are susceptible to bark beetle attack.

Root rots caused by Fomes annosus and Armillaria mellea cause mortality and growth loss in localized centers. Fomes annosus centers have been found in ponderosa pine, Jeffrey pine, and White fir stands in the following locations: Roberts Canyon, Willow Creek, Shingle Mill Flat, Hope Valley, Bootleg Canyon, Dog Valley, and Incline Village on the north shore of Lake Tahoe. Armillaria mellea was found to be prevalent in hardwood and white fir stands in the Lake Tahoe Basin.

All species of trees on the Forest are susceptible to one or more of the various heart rot fungi. The fungi infect trees through dead branch stubs, wounds, and fire scars. These rots eventually destroy the heart wood of infected trees, resulting in loss of volume and causing structural weakness of the trees affected. Such trees are subject to wind and snow breakage and are particularly hazardous in recreational and residential areas.

Elytroderma needle disease can reduce growth and vigor and increase mortality of Jeffrey pine, ponderosa pine, and lodgepole pine. Although the disease usually occurs at low levels in the Forest, it can build up to epidemic proportions in some years on some sites. A study of such an outbreak in Jeffrey pine in the Lake Tahoe Basin showed significant reduction in growth and increased mortality resulting from severe infection. In some cases, mortality was associated with Jeffrey pine beetle attack.

The identified need of thinning adequate acreages to keep stands growing at good growth rates can be tied to stand hazard rating for bark beetle attack to ensure the highest hazard stands are thinned first.

Dwarf mistletoe control programs have been a part of the Toiyabe silvicultural practices for several years. However, these have been accomplished only where thinning or timber sales activity caused stand manipulation. There is a great need for expanded mistletoe control programs.

Fomes annosus infection centers need to be identified, evaluated, and monitored to prevent future spread of this root rot. In areas identified as infection centers, new infections can be prevented by treating freshly cut, uninfected stumps with Borax. Control measures for Fomes annosus need to be evaluated to determine the most cost-efficient way.

Detection consists of annual aerial flights by Regional entomologist and pathologist to determine new outbreaks of insects and/or disease. This detection is supplemented by ground observation by Forest personnel. Evaluations are annually made resulting in treatment activities. Historically this treatment has been removal through fuelwood cutting or tree removal. Herbicide treatment has been limited to high value sites such as campgrounds and summer homes sites.

Prevention efforts include integrated pest management techniques and thinning of overstocked stands to minimize bark beetles and mistletoe.

RANGELAND INSECTS AND DISEASES

The diversity of rangeland insects and diseases is very large. However, the insects and diseases are a poorly understood component simply because of the low acre value of rangelands. The return per acre has not supported their control or their study.

Many of the insects may be classified as pests of rangeland, but only a few may be regarded to be serious pests. The chewing insects of shrubs are most conspicuous; whereas, the sucking insects of shrubs largely go unnoticed. Each year, very, very, small outbreaks occur, but no major outbreaks have occurred. The Great Basin tent caterpillar, which defoliates bitterbrush, is watched for because of its potential to cause widespread damage to this important browse shrub. Another insect watched for is the sagebrush defoliator, which has the potential to kill or seriously injure sagebrush over large areas.

The chewing insects of grasses and forbs are the most apparent of the insects that are associated with grasses and forbs. Although outbreaks have occurred in Nevada, no outbreaks have occurred on the Forest. The chewing insects watched for are grasshoppers, morman cricketts, and range caterpillars. Several kinds of ants are present. The conical mounds, surrounded by large denuded areas, of the western harvester ants, are not only quite visible but also very numerous. These ants, undoubtedly, remove a great amount of vegetation each year, lowering the production of important range plants.

The sucking insects of grasses and forbs are not easily seen, largely because the resulting damage is difficult to detect. However, no outbreaks have been observed. The sucking insects watched for are leafhoppers, aphids, scales, and black grass bugs. The black grass bugs recieve special attention because of their ability to do an enormous amount of damage to stands of wild rye grass and crested wheatgrass, which are two very important range grasses, extensively present on the Forest.

The need to control insects on the Forest rangelands has not risen. The control of grasshoppers and morman crickets is an ongoing project in Nevada, conducted by the Animal and Plant Health Inspection Service. Forest Service representatives periodically meet with APHIS representatives to assess the need for their control as well as other insects on National Forest System lands.

ECONOMIC AND SOCIAL SETTING

ZONE OF INFLUENCE

The Toiyabe National Forest administers 3,171,705 net acres of land in nine Nevada counties and three California counties. These counties are: Carson City*, Clark, Douglas, Eureka, Lander, Lyon, Mineral, Nye, and Washoe in Nevada; and Alpine, Mono, and Sierra in California. This is the primary Zone of Influence for the Toiyabe National Forest. A secondary Zone of Influence includes Churchill, Esmeralda, and Storey counties in Nevada and the Central/Southern California area. (See Table III-13.)

TABLE III-13 PRIMARY AND EXTENDED (SECONDARY) ZONES - TOIYABE NATIONAL FOREST

PRIMARY ZONE

AREA	COUNTY	RESOURCE
1. Northern Sierra	Alpine, Carson City,* Douglas, Lyon, Sierra, Washoe	Recreation, Timber, Range,Minerals, Fuelwood, Wilderness
2. Southern Nevada	Lyon, Mineral, Mono	Recreation, Timber, Range, Minerals, Fuelwood, Wilderness
3. Central Nevada	Eureka, Lander, Nye	Recreation, Range, Minerals
4. Las Vegas	Clark	Recreation
Extended (Secondary) Zone		
1. Washoe County		Recreation,Fuelwood
2. Clark County		Recreation
3. Carson City		Recreation, Fuelwood
4. Central/Southern California		Recreation

* Carson City represents the City of Carson and the County of Ormsby.

The Secondary Zone includes areas that are not directly affected by Toiyabe actions. However, the Toiyabe provides recreational opportunities and fuelwood for many residents of these areas.

The Forest's primary Zone of Influence has a population of over 750,000. Of this, 741,021 reside in Nevada, which is 93% of that state's population. In the California counties, there are 12,747 residents, which is only .05% of that state's population. (U.S. Department of Commerce, Census of the Population, 1980). Clark and Washoe counties in Nevada, which contain the cities of Las Vegas and Reno, have a population of over 655,000, which is 82% of the population of Nevada. These two cities are the major trade centers for much of western and southern Nevada and eastern California. The other counties in the zone, with the exception of Carson City, tend to be rural in nature and are more dependent on the large population centers for most services.

Even though Nevada is commonly thought of as a rural state, with a population density of 7.2 people per square mile, the population densities of the Nevada counties in the zone vary from a high of 209.3 people per square mile in Carson City to a low of .3 in Eureka. Generally, the counties in central Nevada have very low population densities, while Clark, Douglas, and Washoe have population densities of 57.1, 25.9, and 29.3 respectively.

In California, the counties in the Zone of Influence also have low population densities of 1.5, 2.8, and 3.2 for the counties of Alpine, Mono, and Sierra, respectively.

All of the counties in Nevada have a large percentage of land that is in federal government ownership. Douglas County has the least amount with 37.9%, while Nye County has the greatest amount with 92.7% in Federal ownership. The average for the nine counties is 72.9%.

In California, the percentage of Federal ownership ranges from a high of 88.7% in Alpine County to a low of 69.0% in Sierra County.

Minorities make up 17.8% of the population in the zone. The largest group consists of Blacks at 6.3%, followed by Hispanics at 6.1%, Asians with 1.7%, and Native Americans with 1.3%. Most of the Zone of Influence minority population is in Clark and Washoe Counties and the cities that have the largest populations are Las Vegas and North Las Vegas. The minority populations are generally congregated in the more urban areas, with the exception of the Native Americans who are located in both urban and rural areas and on reservations and colonies.

Hispanic Americans are also located in rural counties and along with the Native Americans comprise the significant minority groups in less populated areas. The influence on Native American colonies and reservations by the National Forest is probably most pronounced in the Alpine, Dresslerville, and Woodfords colonies and the Yomba Reservation due to their close proximity to Forest Service lands.

Geographic Units of Analysis

The counties comprising the primary zone are grouped into four broad areas based on geographic continuity and similarity of resource outputs. These areas are: Northern Sierra, which includes the counties of Carson City,

best copy available

Douglas, and Washoe in Nevada, and Alpine and Sierra in California; Southern Sierra, which includes the counties of Lyon and Mineral in Nevada and Mono in California; central Nevada, which includes the counties of Eureka, Lander, and Nye; and Las Vegas, which is in Clark County.

Northern Sierra

This area is part of the Sierra Front which supports a variety of important commercial tree species including Jeffrey pine, white fir, California red fir, western white pine and lodgepole pine. Aspen is limited and there are extensive stands of pinyon-juniper at the lower elevations.

The Toiyabe National Forest has averaged about 6 MMBF cut annually for the last 10 years. Most of this is from the Northern Sierra part of the Forest. Of the mills processing timber that are located in or near the Zone of Influence, only the mill in Gardnerville, which employes about 100 workers, receives more than 45% of its sawtimber from the Toiyabe. The other mills receive most of their sawtimber from adjacent Forests (i.e. Eldorado, Tahoe, and Plumas) who have larger allowable cuts, and to a smaller degree, from private lands.

The Forest is currently ranked 19th nationally for recreational use on Forest Service lands (2nd in Region 4) with an average over the past three years of 2,947 MRVD's a year. Of this, 21.2% of the recreational use occurs in the Northern Sierra unit, which includes the Slide Mountain Ski Area. Most of the recreational users of this area originate from central California, the Bay area, Reno, and Carson City.

Overall, the Forest Service has very little economic impact on this area. It is estimated, from an input/output computer model call IMPLAN, that only 0.3% of the people employed in this area depend upon outputs from Forest Service lands. The income earned by them is also only 0.3% of the total income. (This was determined by comparing the 1981 Forest outputs with the 1977 data base provided by IMPLAN). These estimates do not include Forest Service employees or their salaries. However, it does include Forest Service expenditures and their impact on the area, along with Forest Service employee expenditures in the local communities.

This is somewhat misleading in that the labor forces of Reno and Carson City are included in the totals. There are a number of smaller communities whose economies are fairly dependent upon the outputs from Forest Service lands.

For example, it is possible that all of the direct, and most of the total impact of decreasing the timber harvest could occur in the communities of Minden and Gardnerville. (Although it is also possible that the logging and mill industries in this area could compensate for the loss of timber from the Toiyabe by harvesting more timber from the adjacent National Forests). The other outputs that have significant impacts on the area are skiing and dispersed recreation activities. Any major changes in these outputs would probably have significant impacts on the communities of Medford and Markleeville, especially Markleeville, since their economy is primarily based on serving the recreational users of the Forest.

Southern Sierra

This area is similar in vegetation to that of the Northern Sierra area. This area, along with the northern area, produces most of the water necessary to support western Nevada. These areas include the sources of the Carson and Walker river systems.

Of the Forest's total recreation output, 44.3% of the RVD's are spent in this area. Most of these users are from southern California.

According to the IMPLAN estimates, the outputs produced in this area have more affect on the local communities than is the case in any of the other units. It is estimated that 4.7% of the people employed in this area depend upon outputs from National Forest land. The income earned by them is only 3.7% of the total income.

The area that would receive the greatest impact in this unit would be Bridgeport, California, in Mono County. This community is highly dependent upon the recreation and wildlife users of the Forest, and the direct effects along with a majority of the indirect effects of any change in these outputs would probably be centered in this town. Grazing use is another output that has important impacts on quite a number of people in this area, although no one community would be greatly impacted.

Central Nevada

This area is typical of the Basin/Ranges landform in Nevada. The climatic conditions are generally harsh and the vegetation consists of pinyon-juniper and sagebrush-grass. Domestic livestock grazing and the mining of gold, silver, uranium, and barite are the principal activities. The area near Tonopah and Austin has also been considered as a potential MX missile site.

Of the Forest's total recreation output, 13.9% of the RVD's are spent in this area, with most of the users originating from central Nevada.

It is estimated that only 2.6% of the people employed in this area depend upon outputs from Forest Service land. The income earned by them is only 1.5% of the total income. The grazing and dispersed recreation activities have the most impact on the area and a change in grazing use would have its greatest impact on the town of Austin.

The communities of Austin, Round Mountain, and Gabbs also are extremely dependent upon the mining activities that are occuring in this area and would be severely impacted if these operations ceased. (Since the Forest Service has no real impact on mining activities, they were not included in the estimates calculated by IMPLAN).

The town of Tonopah (and Hawthorne, which is actually a part of the Southern Sierra unit) is also dependent upon mining activities, but not as much as the others previously mentioned, due to the presence of the military installations.

Las Vegas

This unit includes the 58,000 acres of Forest land around Mt. Charleston.

It provides an environment from the low desert to the subalpine. There has been no livestock grazing or commercial timber harvest on this unit for the past two decades and the predominant use is recreation.

In fact, 21.6% of the Forest's total recreation output, or a little over 636,500 RVD's occur in this area. Obviously, this shows the intense recreational use that is placed on only 58,000 acres, with most of the people coming from the Las Vegas area. The use figure includes the use from the Lee Canyon Ski area.

In terms of the impacts of Forest Service actions on local communities, it is estimated that only 0.2% of the labor force in Clark County depends upon the outputs from the Forest. The income earned by them is also 0.2% of the total income. The only real impact that any Forest Service action could have on the local communities in this area would be on those businesses and services that are oriented toward the recreationalist.

In all the units of analysis, there is a significant demand for fuelwood. This demand has been increasing, primarily due to the increased costs of heating fuels. The supply Forest-wide, however, is limited by poor access and availability of suitable woodcutting sites. This is especially true in the Sierra influence zones, where most of the demand occurs. In the central Nevada unit, the supply exceeds the demand, but it is also limited by poor access.

Another problem in the central Nevada area is the conflict between those people who want to harvest the pinyon pines for fuelwood versus those who want to maintain the trees for pinenut harvesting. The harvesting of pinenuts for both commercial and personal use is significant and it provides an important source of income and recreational opportunity for many people, including the Native Americans.

VARIABLES AND SOCIAL UNITS OF ANALYSIS

The outputs produced by the Toiyabe National Forest affect different groups of people. Seven different groups have been identified for purposes of analyzing the effects that different management strategies will have on the people in the Zone of Influence. These groups (or Social Units) are fuelwood cutters, local businessmen, loggers/millworkers, miners, Native Americans, ranchers, and recreation users (tourists, hunters, and fishermen). (NOTE: The reader should keep in mind that the following descriptions of each social group are generalized statements and do not apply to every individual in the group).

Fuelwood Cutters

This group is comprised of various groups of people with different backgrounds. They are generally between the ages of 25 and 45 years old, and many of them rely on firewood as their primary source of heat.

Being independent and self-reliant is very important to this group, but community cohesion (the feeling of really being a member of the community and getting involved in community activities) is of only moderate importance. They enjoy living near public lands so that they can have easy access to the natural resources, and they place a high importance on working and recreating in an uncrowded, natural setting.

Local Businessmen

They are concerned with living in a community that works together to accomplish goals, and they like to get involved in community affairs and in local politics. Many are considered to be independent and conservative, and they attach a great deal of importance to limiting government control and being self-sufficient. With the exception of the young and recreation oriented businessmen, many business people tend to be more interested in the commodity rather than the amenity values of the land.

Loggers/Millworkers

Generally, these people travel great distances to work, put in long hours of work, and are seasonally employed. They love the out-of-doors for both work and play. They are very concerned about any change in policy that would affect the timber supply, and they can be a very vocal and politically influential group.

Maintaining their lifestyles is very important to this group. They like living in uncrowded areas, near public lands, and being able to work with or near the natural resources. They are also concerned about having sufficient natural resources for the future. Community cohesion is of only moderate importance to this group, while limiting government control and being self-sufficient are very important.

Miners

This group places a high importance on being independent, self-sufficient, and limiting government control. Since many of the members of this group are newcomers, and many are by necessity transient in nature, community cohesion is not an important variable for them.

Miners are often seen as hard-living/hard-working people who place a great deal of importance on maintaining their particular lifestyles. They generally view the utility of the Forest resources from a consumptive rather than an amenity perspective. Many are concerned about the quality of the environment, however, and most of them are concerned about having sufficient resources now and in the future.

Native Americans

This group places a great deal of importance with being independent, maintaining their lifestyles, and maintaining their family ties and traditions.

They have a high respect for the land and they place more importance on the comsumptive uses of the land (e.g., hunting, fishing, grazing, firewood cutting, etc.) than the amenity values that the Forest has to offer. Any government interference to their uses of the land would be strongly resisted.

(Even though there are other minority groups that have larger populations than this groups, they are not discussed in this section because the impacts of Forest Service activities on these groups are relatively minimal. Whereas, many Native Americans are dependent upon National Forest lands for their livestock grazing permits and the harvesting of pinenuts).

Ranchers/Farmers

The people in this group tend to be residents whose family ties to the area often go back several generations and whose values are greatly influenced by the pioneers/settlers of the West. They are usually conservative, have concern for their neighbors, respect the land, and have a strong desire to maintain their independence.

Maintaining their lifestyles is the most important variable for this group. They like living in rural areas, being able to work with the land and they are concerned about having sufficient resources for the future. They like being self-relient, their own boss, and they would like to reduce any governmental interference.

Usually, they are well respected community members, and are often active in state and local politics.

Recreation Users

This is another group that is comprised of various groups of people with different backgrounds. Generally, they place a high value on being independent and controlling their own lives. Community cohesion is important to them, but not as much as being self-reliant.

Living in uncrowded areas is of only moderate importance to them, but being able to go an uncrowded place and enjoy the amenities that a forest has to offer is very important to them.

The Zone of Influence Population

Overall, the proximity to the two main population centers of Nevada and the resulting high demand for forest resources creates a high interest in the management of the Toiyabe National Forest. Many urban users desire alternatives that increase recreational opportunities, and have concerns over those alternatives that emphasize "developed" management activities. There is also significant public interest in meeting the fuelwood demand and in the harvesting of timber. The rural users are equally vocal in expressing their need for increased grazing opportunities, as well as recreational uses.

The political interest in Forest activities is high, especially since Nevada maintains a distinct "Frontierist" attitude, as exemplified by the concern over federal land ownership in the so-called Sagebrush Rebellion.

PAST TRENDS: POPULATION, EMPLOYMENT, INCOME AND PAYMENTS TO COUNTIES

The population of the Zone of Influence has increased at a rate of 5.2% annually from 1970 to 1980, while the total income has increased at a rate of 8.4% annually for the years 1977 to 1980. (See Table III-14).

Employment in the Zone of Influence depends heavily on the Services sector (39.3%), with the next highest employment sectors being Government (15.7%), and Retail Trade (15.1%). The Service sector is especially prominent in Clark and Washoe counties where major gaming activities exist. In Nye county, the service industries are geared toward mining and military activities, while Alpine and Mono counties in California are geared toward tourism.

From 1970 to 1980, the service sector has been increasing at an average annual rate of 6.8% and its proportion of total employment is up from 1970, when it was 37.3%.

The Government sector is comprised of Federal Civilian, Military, and State and Local Government employees. In 1970, the distribution of employment was approximately 18%, 25%, and 57%, respectively and accounted for 20.5% of the total employment. In 1980, the percentage of total employment dropped and the distribution changed to 14%, 17%, and 69%, respectively. This indicates that the employment in the state and local governments is attempting to keep pace with the growing population of the zone, while the federal civilian and military employment has remained somewhat constant. Carson City has a large proportion of government employees. The state capital is there. Clark and Nye counties have high levels of military employees due to the Nellis Air Force Base and Nevada Test Site. Clark and Washoe counties also have large government sectors because of the large populations centered in and around the cities of Las Vegas and Reno.

Employment by the Toiyabe National Forest in the Zone of Influence amounts to approximately 166 people, half of them located in Reno. However, for the towns of Markleeville, Bridgeport, Austin, and Tonopah, this represents a stable employment source.

Retail Trade is the third largest sector. If combined with the Wholesale Trade sector, it would be the second largest sector with 18.1% of the total employment. This is up from the 16.1% of the total in 1970 (13.4% - Retail and 2.7% Wholesale).

Construction and the T.C.P.U. (Transportation, Communications, and Public Utilities) sector are the next largest employers with 5.7% and 5.3% of the employment, respectively. Construction has shown an increase from 5.3% in 1970, while T.C.P.U. has decreased slightly from 5.6% in 1970.

TABLE III-14 ECONOMIC INDICATORS - PAST TRENDS
(Dollar Values are in Terms of First Quarter, 1978 Dollar)

For: Carson City, Clark, Douglas, Eureka, Lander, Lyon, Mineral, Nye, and Washoe Counties in Nevada, and Alpine, Mono, and Sierra Counties in California.

		Year	
	1960	1970	1980
Population (M Persons) (Census of Population & Housing)	247.339	448.056	753.768

		Year		
	1967	1970	1977	1980
Income (MM$) 1/*	2.663	3.369	5.187	6.665
Employment (M Persons) 2/**	185.255	226.752	333.434	427.535
Farm Proprietors	1.125	1.110	.922	1.021
Non-Farm Proprietors	11.528	13.168	19.823	22.891
Wage and Salary Employment				
Farm	.831	.980	1.037	1.034
Agc. Serv., Forestry, Fish	.244	.359	.363	1.149
Mining	1.916	2.167	2.580	3.682
Construction	7.716	11.948	19.242	24.559
Manufacturing	6.619	8.112	14.655	18.589
T.C.P.U.	10.627	12.642	17.644	22.604
Wholesale Trade	4.721	6.067	9.513	12.686
Retail Trade	23.692	30.449	48.411	64.606
F.I.R.E.	6.782	8.197	12.902	18.497
Services	70.363	84.665	126.056	167.829
Government	38.457	46.521	59.064	67.158

		Year		
	1967	1979	1980	1982
Payment in Lieu of Taxes 3/	NA	424,929	349,950	NA
Payment Under 25% Fund 4/	NA	119,238	150,986	137,623

1/ Source: Nevada counties - Bureau of Economic Analysis, Regional Economic Information System

California Counties - Local area Personal Income 1975-1980 for West Region, U.S. Department of Commerce, Bureau of Economic Analysis.

*The 1967 and 1970 data on personal income from the California counties was not available.

2/ Source: Bureau of Economic Analysis, Regional Economic Information System.** Totals may not add up, due to the non-disclosure of confidential data.

3/ The figures are estimates, based upon the total payments to the counties involved, of which approximately 11.5% of all government land is administered by the Toiyabe National Forest. (Then converted to 1987 dollars).

Source: 1920/1970 letter to Forest Supervsiors and Planners from Director, Planning and Budget, Region 4, dated January 22, 1982.

4/ Source: For 1979 - Annual Collection Statement, National Forest Fund, USDA Forest Service, Region 4, November 1, 1979.

For 1980 - Toiyabe National Forest Files

For 1982 - 6550 letter to Forest Supervisors from Acting Director, Fiscal and Accounting Management, Region 4, dated December 29, 1982.

Construction appears to have its greatest impacts in Carson City, where it is 6.6% of all employment. In the counties of Clark and Washoe it is 5.8% of employment.

The Manufacturing and F.I.R.E. (Finance, Insurance, and Real Estate) sectors each comprise around 4.3% of the total employment. This is an increase over 1970, when each one had 3.6% of the employment.

Even though the Mining sector has dropped from 1.0% of all employment in 1970 to 0.86% in 1980, it has been expanding very rapidly in the last several years. In fact, from 1977 to 1980, it has increased at an average annual rate of 11.9%. (However, this may be somewhat misleading due to the non-disclosure of confidential data in some counties.) Mining is the largest employer in Eureka and Lander counties and it is a significant employment sector in Nye county. In 1970, mining was 23.4% of all employment in Lyon County, but this has drastically dropped to only 4.1% in 1980.

The non-farm proprietors have been increasing at an average annual rate of 5.5%. They comprised 5.8% of the work force in the Zone of Influence in 1970, but then droped to 5.4% in 1980.

As for employment related to agriculture, the number of farm proprietors was decreasing from 1967 to 1977, but recently it has started to increase. Lyon county has the largest number, where in 1980 it had 7.4% of the work force. The number of workers on farms was increasing at an average annual rate of 2.2% from 1967 to 1977. Since then it has leveled off.

The Agriculture Services, Forestry, and Fisheries sector stayed at a fairly constant level of employment from 1970 to 1977. Since 1977, however, it has increased at an average annual rate of 38.4%. Here again, this information may be misleading due to the non-disclosure of confidential data for this sector in some counties. The majority of the people employed in this sector are in Clark and Washoe counties and the majority of the increase appears to be in Clark county. (No actual figure for employment in this sector was shown for Clark county in 1977, but there was a 199% increase from 1970 to 1980.)

Overall, for the whole Zone of Influence, the past trends seem to indicate that employment still centers around the Service sector, although the Trade, Construction, and Manufacturing sectors are growing and the economy is becoming more diverse. The agriculture related sectors and federal government workers are not keeping pace with the growth of the other sectors. State and local government employees have been increasing, but their percentage of total employment is decreasing.

BASELINE PROJECTIONS: POPULATION, EMPLOYMENT, INCOME, AND PAYMENTS TO COUNTIES

It is estimated that the population of the Zone will increase at an average annual rate of 3.4% from 1980 to 1990 and 2.8% from 1990 to 2000. The total income for the Zone, however, is projected to increase at an average annnual rate of 5.7% from 1980 to 1990 and 4.4% from 1990 to 2000. (See Table III-15).

TABLE III-15 Economic Indicators - Baseline Projections
(Dollar Values Are in Terms of First Quarter, 1978 Dollars)

For: Carson City, Clark, Douglas, Eureka, Lander, Lyon, Mineral, Nye, and Washoe Counties in Nevada, and Alpine, Mono, and Sierra Counties in California.

	Year			
	1985	1990	1995	2000
Population (M Persons)	893.893	1063.595	1221.486	1405.752
Income (MM$)	9.105	11.782	14.702	18.347
Employment (M Persons)	532.036	614.516	687.659	770.179
Agriculture Production*	2.029	2.030	2.021	2.014
Non-Farm Proprietors	28.507	34.727	39.026	43.866
Wage and Salary Employment				
Ag. Serv., Forestry, Fish	1.388	1.480	1.580	1.667
Mining	4.533	4.775	4.992	5.236
Construction	28.890	31.083	33.458	36.025
Manufacturing	24.860	30.890	36.467	43.075
T.C.P.U.	27.853	31.958	35.626	39.717
Wholesale Trade	16.237	18.912	21.719	24.944
Retail Trade	82.724	96.571	109.541	124.263
F.I.R.E.	25.374	30.472	34.958	40.109
Services	212.378	246.429	275.345	307.674
Government	77.263	85.189	92.936	101.589
Payment in Lieu of Taxes	NA	NA	NA	NA
Payment Under 25% Fund	NA	NA	NA	NA

---

* Includes Farm Proprietors and Farm Employees

Sources:

Population projections from:

- State Planning Coordinators Office, Nevada, November 26, 1980.
- 1981 P-1 Reports, California.
- Averages annual rates of increase, calculated from the 1980 OBERS BEA Regional Projections, Volume II, Region 8 and 9, U.S. Department of Commerce, Bureau of Economic Analysis.

Income Projections from:

- Average annual rates of increase, calculated from 1980 OBERS BEA Regional Projections, Volume II, Regions 8 and 9, U.S. Department of Commerce.

Employment Projection From:

- Average annual rates of increase, calculated from the 1980 OBERS Projections.
- Average annual rates of increase, calculated from Nevada's Demographic and Economic Impact Simulation Model, Governor's Office of Planning Coordination, December 1978.

The trends that were displayed in the past are expected to continue into the future. The Services sector should be the dominant one with a projected 39.9% of the total employment in 2000. The Retail Trade sector will surpass the Government sector as the second largest one with 16.1% of the total and the Government sector will become the third largest employer. It's portion of total employment will continue to gradually decrease over time and in 2000 it will be 13.2% of all employment.

The Manufacturing sector is projected to increase from 4.3% of the total employment in 1980 to 5.6% in 2000, and the F.I.R.E. sector will increase from 4.3% to 5.2%. However, the T.C.P.U. sector will drop slightly from 5.3% to 5.2% and the Construction sector is projected to decrease from 5.7% of the total employment in 1980 to 4.7% in 2000.

The Mining sector is projected to only increase by an average annual rate of 1.8% from 1980 to 2000 and the non-farm proprietors are projected to increase by an average annual rate of 3.2%

The farm proprietors and employees are expected to stay around their present levels with some slight decreases over time. The Agricultural Services, Forestry, and Fisheries sector on the other hand, is expected to increase, but only at an average annual rate of 1.9% from 1980 to 2000.

TABLE III-16 SENSITIVE PLANT SPECIES TOIYABE NATIONAL FOREST

December, 1984

California:

CRYPTANTHA HOFFMANII Johnston
DRABA CRUCIATA Payson var. CRUCIATA
DRABA LEMMONII Watson var. INCRASSATA Rollins
DRABA STENOLOSA Ledebour var. RAMOSA C.L. Hitchcock
PHACELIA MONOENSIS Halse
RORIPPA SUBUMBELLATA Rollins
SILENE INVISA Hitchcock & Maguire
STREPTANTHUS OLIGANTHUS Rollins

Nevada:

AGAVE UTAHENSIS Engelman var. EBORISPINA (Hester)Britten
AGAVE UTAHENSIS Engelman var. NEVADENSIS Engelman ex. Green & Roush
ANGELICA SCABRIDA Clokey & Mathias ex Clokey
ANTENNARIA SOLICEPS Blake
ARCTOMECON MERRIANII Coville
ARENARIA KINGII (S. Watson) M.E. Jones ssp. ROSEA Maguire
ARENARIA STENOMERES Eastwood
ASCLEPIAS EASTWOODIANA Barneby
ASTRAGALUS AEQUALIS Clokey
ASTRAGALUS FUNEREUS M.E. Jones
ASTRAGALUS OOPHORUS Watson var. CLOKEYANUS Barneby
ASTRAGALUS JOHANNIS-HOWELLI Barneby
ASTRAGALUS PSEUDIODANTHUS Barneby
ASTRAGALUS SERENOI (O. Kuntze) Sheldon var. SORDESCENS Barneby
ASTRAGALUS TOQUIMANUS Barneby
CORYPHANTHA VIVIPARA (Nuttall) Britten & Rose var. ROSEA (Clokey) L. Benson
CRYTANTHA TUMULOSA (Payson) Payson
CYMOPTERUS GOODRICHII Welsh & Neese
DRABA ARIDA C.L. Hitchcock
DRABA ASTEROPHORA Payson var. ASTEROPHORA
DRABA CRASSIFOLIA Graham var. NEVADENSIS C.L.Hitchcock
DRABA JAEGERI Munz & Johnson
DRABA PAUCIFRUCTA Clokey & C.L. Hitchcock
DRABA QJADRICOSTATA Rollins
EPILOBIUM NEVADENSE Munz
ERIGERON UNCIALIS Blake var. CONJUGANS Blake
FORSELLESIA CLOKEYI Ensign
FRASERA PAHUTENSIS Reveal
HAPLOPAPPUS ALPINUS Anderson
IVESIA CRYPTOCAULIS (Clokey) Keck
LEPEDIUM NANUM Watson
LESQUERELLA HITCHCOCKIANUS Munz
LUPINUS MONTIGENUS Heller
OPUNTIA WHIPPLEI Engelman & Bigel var. MULTIGENICULATA (Clokey) L. Benson
MERTENSIA TOIYABENSIS McBride

TABLE III-16 Sensitive Plant Species, Toiyabe NF, Continued

PENSTEMON BICOLOR (Brandegee) Clokey & Keck ssp. BICOLOR
PENSTEMON BICOLOR (Brandegee) Clokey & Keck ssp. ROSEUS Clokey & Keck
PENSTEMON KECKII Clokey
PENSTEMON RUBICUNDIS Keck
PENSTEMON THOMPSONAE (Gray) Rydberg ssp. JAEGERI Keck
SILENE CLOKEYI Hitchcock & Maguire
SMELOWSKIA HOLMGRENII Rollins
SPHAERAMERIA COMPACTA (H.M. Hall) Holmgren, Shultz & Lowrey
SYNTHYRIS RANUNCULINA Pennell
TOWNSENDIA JONESII (Beaman) Reveal var. TUMULOSA Reveal
TRIFOLIUM ANDERSONII Gray var. BEATLEYAE Gilbert
TRIFOLIUM LEMMONII Watson
VIOLA PURPUREA Kellogg var. CHARLESTONENSIS (Baker & Clausen) Welsh & Reveal

IV. ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This draft environmental impact statement contains nine alternatives (including a Proposed Action) for managing the land and resources of the Toiyabe National Forest over a fifty year planning horizon. This section will discuss and compare the physical, biological, economic and social effects of implementing each alternative. It forms the scientific and analytic basis for the comparison of alternatives.

National Forest land and resource management planning is designed to maximize net public benefits in an environmentally sound manner. Net public benefits consist of both priced and non-priced yields. Priced yields are those which can be quantitatively determined in the marketplace by actual market transactions or by estimation methods which produce prices commensurate with those determined by market transactions. Examples of price yields on Toiyabe National Forest are: the stumpage value of timber, the price received from an animal unit month and the value of developed recreation opportunities. Non-priced yields are those for which there is no available transaction evidence and no reasonable basis for estimating a market value commensurate with market values associated with price yields. Examples of non-priced yields are: wilderness use, dispersed recreation use, protection of cultural resources and maintenance of soil productivity. Certain non-priced yields are primarily qualitative (protection of cultural resources and maintenance of soil productivity). Others are essentially quantitative (wilderness and dispersed recreation use).

Environmental consequences are the result of activities scheduled to implement the alternatives for managing the Toiyabe National Forest over the planning horizon. The level of activities (therefore the level of environmental effects) differs among the alternatives. This chapter will emphasize activities which significantly effect the environment. There are a number of National Forest activities which have no significant impact on the environment: planning and inventory of all resources, administration of programs, monitoring of resources, property line location and maintenance, search and rescue, law enforcement, fire prevention, fire detection and fire presuppression. Therefore, they are not considered in detail.

Table IV-1 is a display of outputs, both quantitative and qualitative for various resources. Outputs are 50 year totals unless otherwise specified.

TABLE IV-1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity	Unit of Measure	A	B	C	D	E	P	F	G	H
RECREATION										
Developed Recreation Use 1	Thousand RVDs	560.0	1030.0	610.0	1160.0	620.0	1190.0	630.0	1230.0	630.0
Dispersed Recreation Use 1	Thousand RVDs	1949.0	2550.0	2160.0	2400.0	1740.0	2230.0	1940.0	1430.0	2530.0
Expected to meet demand		NO	YES	NO	YES	NO	YES	NO	YES	NO
Percent Full Service	Percent	70	100	54	100	60	100	53	100	70
Percent Reduce Service	Percent	30	0	46	0	40	0	47	0	30
Number of New Developed Sites	Numbers	0	17	0	14	4	12	3	13	2
Miles of New Trails	Miles	0.0	66.0	17.4	24.6	0.0	40.9	14.2	18.0	24.4
Possible ORV Travel areas open	Thousand of Acres	2863.7	3170.1	2026.0	2647.3	2866.4	2949.2	1183.5	1823.5	1672.4
Additional ORV Closed areas	Thousand of Acres	306.4	0	1144.1	522.8	303.7	220.9	1986.4	1346.6	1497.7
TIMBER										
Program Sales Offered 1	Millions CF	.92	1.86	.31	1.39	0.0	.69	0.0	1.39	0.0
	Millions BF	6.0	12.0	2.0	9.0	0.0	4.5	0.0	9.0	0.0
Artificial Regeneration 1	Acres	78.2	165.0	53.0	124.0	30.0	71.8	27.0	126.8	30.0
Natural Regeneration 1	Acres	153.4	446.6	50.6	249.2	0.0	117.8	0.0	256.8	0.0
Long Term Sustained Yield Capacity	Millions CF	1.06	2.10	1.41	1.83	0.0	1.54	0.0	1.50	0.0
Fuelwood 1	Thousand CF	561.0	641.0	417.0	575.0	540.0	587.0	357.0	510.0	474.0
	Cords	6227.0	7115.0	4629.0	6383.0	5994.0	6516.0	3963.0	5661.0	5261.0
Tentatively Suitable Forest Land	Thousand Acres	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5
Assigned to Additional Wilderness	Thousand Acres	26.0	10.1	29.7	18.4	18.4	18.4	29.7	29.7	10.3
Not Cost Efficient for Alternative	Thousand Acres	32.2	13.6	11.1	8.9	88.1	17.5	76.8	14.6	96.2
Total Suitable Forest Land	Thousand Acres	48.3	82.8	65.7	79.2	0.0	70.6	0.0	62.2	0.0
Productivity Classification	Cubic Feet/Ac./Yr.	20-49	20-49	20-49	20-49	20-49	20-49	20-49	20-49	20-49
Total Unsuitable Forest Land	Thousand Acres	1599.3	1564.8	1581.9	1568.4	1647.6	1577.0	1647.6	1585.4	1647.6
Christmas Trees 1	Thousand Trees	3.9	2.5	1.0	4.2	1.7	1.3	.5	4.5	.5
Pinyon Nuts 1	Thousand Pounds	125.0	75.8	74.7	89.5	79.5	77.8	78.8	106.9	61.5
Post & Poles 1	Thousand Post & Poles	.5	.6	.4	.5	.6	.5	.2	.5	.2
FACILITIES										
Arterial Road Construction 1	Miles	1.0	2.9	.2	2.3	0.0	.7	0.0	2.7	0.0
Arterial Road Reconstruction 1	Miles	7.3	31.1	17.7	29.8	0.0	18.7	0.0	29.5	26.5
Local Road Construction 1	Miles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local Road Reconstruction 1	Miles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timber Purch. Road Construction 1	Miles	2.8	4.6	.3	3.7	0.0	.2	0.0	3.8	0.0
Timber Purch. Road Reconstr. 1	Miles	2.9	5.1	1.2	3.6	0.0	2.5	0.0	3.6	0.0
Local Road Condition		FAIR	BEST	FAIR	GOOD	POOR	GOOD	POOR	BEST	GOOD
Arterial Road Condition		FAIR	BEST	FAIR	GOOD	POOR	GOOD	POOR	BEST	GOOD
LANDS										
Land Purchase & Acquisition & Exchange 1	Acres	360.0	800.0	360.0	1200.0	260.0	700.0	600.0	600.0	800.0
High Priority Wildlife lands		NO	YES	YES	NO	NO	YES	YES	NO	NO

TABLE IV-1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity		Unit of Measure	A	B	C	D	E	P	F	G	H
SOIL AND WATER											
Soil and Water Improvement Acres	1	Acres	13.0	57.0	26.0	25.0	11.0	34.0	20.	11.0	29.0
Erosion over natural		Percent	5.0	23.0	3.0	13.0	0.0	5.0	0.0	12.0	0.0
Meeting Water Quality Standards	1	Thousand Ac-ft	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0
RANGE											
Livestock (Permitted Use)	1	Thousand AUMs	98.4	99.0	92.0	98.0	95.0	99.0	92.0	102.0	92.8
Wild horses (Permitted Use)	1	Thousand AUMs	4.2	7.5	6.7	5.4	6.4	5.1	5.5	5.0	5.8
Acres in satisfactory condition		Percent by 2030	90.0	95.0	90.0	95.0	90.0	95.0	90.0	95.0	90.0
WILDERNESS											
New Wilderness acres		Thousand Acres	209.8	0	1113.6	592.7	306.1	180.5	1992.2	1345.0	1464.2
Wilderness Use	1	Thousands RVDs	442.4	100.1	1036.0	661.7	795.4	663.6	1184.9	1084.5	889.0
Development	5	Thousands of Acres	60-120	77-155	40-80	55-110	60-120	73-146	0	35-70	30-60
RECREATIONAL OPPORTUNITY SPECTRUM		Thousand Acres									
Primitive			147.3	135.4	147.4	87.4	147.4	147.4	147.4	147.4	147.4
Semi-primitive non-motorized			1378.1	423.1	1263.1	1078.1	1478.1	1409.1	1478.1	1288.0	1478.1
Semi-primitive motorized			1087.1	358.1	1152.1	1387.1	987.1	1056.1	987.1	947.0	987.1
Roaded Natural			536.3	2232.3	586.3	596.3	536.1	536.3	536.3	756.5	536.1
Rural			21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3	21.3
VISUAL QUALITY OBJECTIVES		Thousand Acres									
Preservation			344.9	135.1	1248.7	727.8	441.2	346.6	2127.3	1483.1	1599.3
Retention			383.7	426.8	315.0	408.0	393.3	463.0	104.3	197.0	187.9
Partial Retention			1032.2	1203.1	629.4	926.6	968.4	1047.4	219.3	468.0	492.5
Modification			1172.4	1176.5	750.1	1016.9	1133.6	1086.4	501.8	789.0	663.0
Maximum Modification			238.5	230.4	228.5	232.4	235.2	228.0	230.4	237.6	229.0
PROTECTION											
Fuel breaks and Fuel Treatment	1	Acres	650.0	1360.0	1080.0	1090.0	780.0	1230.0	1100.0	1230.0	840.0
Prescribed burning for Range	1	Acres	480.0	560.0	400.0	440.0	360.0	490.0	400.0	560.0	560.0
Prescribed burning for Wildlife	1	Acres	1184.0	1072.0	726.0	940.0	880.0	1104.0	430.0	224.0	1026.0
Person caused fires	1	Numbers Fires	26.0	21.0	24.0	19.0	23.0	22.0	23.0	21.0	23.0
Acres burned by Wildfire	1	Thousand Acres	4.2	.5	2.3	2.3	1.5	.56	2.3	2.3	2.3
Cost plus Net Value Change	1	Millions Dollars	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

TABLE IV-1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity		Unit of Measure	A	B	C	D	E	P	F	G	H
WILDLIFE AND FISHERIES											
		Species numbers at the end of fifty years									
Wildlife Habitat Improvement	1	Thousand Acres	1.9	3.3	2.2	2.9	2.7	3.0	1.3	.7	3.2
Management Indicator Species											
Goshawk		Breeding Pair	60.0	56.0	70.0	57.0	59.0	66.0	80.0	72.0	60.0
Pine marten		Animals	850.0	800.0	1300.0	810.0	900.0	1000.0	1200.0	1200.0	1200.0
Paiute cutthroat trout		Fish/stream/mile	260.0	320.0	500.0	500.0	280.0	500.0	400.0	300.0	400.0
Lahontan cutthroat trout		Fish/stream/mile	250.0	300.0	475.0	370.0	250.0	500.0	360.0	280.0	360.0
Williamson's sapsucker (pairs)		Animals	3100.0	2200.0	3800.0	2700.0	3100.0	3400.0	3800.0	4000.0	3800.0
Hairy woodpecker (pairs)		Animals	4500.0	3500.0	5600.0	4100.0	4500.0	5000.0	5800.0	5700.0	5800.0
Mule deer		Animals	29.8	32.6	31.7	33.3	29.0	33.6	30.3	26.4	30.3
Sage grouse		Animals	17.3	17.3	22.0	17.4	17.3	23.0	17.3	17.3	17.3
Yellow warbler (pairs)		Animals	5500.0	4600.0	6700.0	4600.0	4800.0	5600.0	6000.0	5600.0	6000.0
Palmer's chipmunk		Animals	6600.0	6600.0	6600.0	6600.0	6500.0	6600.0	6600.0	6600.0	6600.0
Yellow-bellied sapsucker		Animals	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0	1500.0
Macroinvertebrates		Biotic Cond. Index	70.0	50.0	100.0	51.0	55.0	75.0	90.0	70.0	90.0
Dispersed Wildlife Use											
General Forest Area	1	Thousand of WFUDs	300.0	780.0	440.0	560.0	380.0	560.0	360.0	250.0	670.0
Wilderness	1	Thousand of WFUDs	70.0	90.0	190.0	110.0	120.0	80.0	260.0	220.0	150.0
Improvement	1	Thousand of WFUDs	8.1	16.6	10.4	10.1	5.2	17.8	5.1	2.9	9.3

		Minimum Viable Population	Maximum Potential	State Agency Objective	Existing Population
Management Indicator Species					
Goshawk	Breeding Pairs	55.	132.	117.(CA/NV)	66. pairs
Pine marten	Animals	800.	3400.	NA	1000.
Paiute cutthroat trout	Fish/stream/mile	230.	460.	460.	230.
Lahontan cutthroat trout	Fish/stream/mile	200.	400.	400.	200.
Williamson's sapsucker (pairs)	Animals	2142.	10200.	NA	3400.
Hairy woodpecker (pairs)	Animals	2500.	21650.	NA	5000.
Mule deer	Animals	29000.	71000.	32400.	29000.
Sage grouse	Animals	17300.	35200.	31000.	17300.
Yellow warbler (pairs)	Animals	4020.	12000.	NA	6000.
Palmer's chipmunk	Animals	5280.	7500.	NA	6600.
Yellow-bellied sapsucker	Animals	900.	2500.	NA	1500.
Macroinvertebrates	Biotic Cond. Index	41. BCI	110. BCI	NA	75. BCI

TABLE IV-1 EFFECTS ON RESOURCES BY ALTERNATIVE

Program Element and Activity		Unit of Measure	A	B	C	D	E	P	E	G	H
MINERALS											
Leases	1	Number of Leases	65.0	64.0	64.0	64.0	60.0	65.0	63.0	63.0	63.0
Operating Plans	1	Plans	252.0	260.0	220.0	240.0	230.0	240.0	200.0	270.0	210.0
Acres Reclaimed	1	Acres	630.0	660.0	420.0	520.0	560.0	610.0	330.0	440.0	360.0
Acres Disturbed	1	Acres	660.0	690.0	460.0	550.0	660.0	640.0	360.0	460.0	400.0
LOCATABLES	2										
High		Thousand Acres	149.0	0.0	356.3	233.3	149.0	40.4	775.6	421.5	469.6
Moderate		Thousand Acres	66.8	0.0	454.5	244.0	104.7	102.0	877.8	584.8	775.3
Low		Thousand Acres	4.3	0.0	333.3	45.5	50.0	80.5	333.3	340.3	252.8
LEASABLES	3										
Geologic Potential											
Oil/Gas											
Low		Thousand Acres	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1	3170.1
Geothermal											
Low		Thousand Acres	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8	3161.8
Medium		Thousand Acres	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Access Constraints	4										
Oil/Gas											
Totally Restricted		Thousand Acres	386.2	39.0	1253.1	572.5	436.4	424.9	2240.0	1572.1	1550.6
Highly Restricted		Thousand Acres	18.0	10.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Moderately Restricted		Thousand Acres	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Low Restrictions		Thousand Acres	2762.7	3117.8	1912.0	2576.4	2312.4	2724.0	908.9	1576.8	1598.2
Geothermal											
Totally Restricted		Thousand Acres	386.2	390.9	1253.1	572.5	436.4	424.9	2240.0	1572.1	1550.6
Highly Restricted		Thousand Acres	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Moderately Restricted		Thousand Acres	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Low Restrictions		Thousand Acres	2775.6	3123.7	1908.7	2589.3	2725.3	2736.9	921.8	1589.7	1611.1

1/ Yearly average for 50 years

2/ Acres of High/Moderate/Low mineral potential found on roadless acres recommended for wilderness that would be constrainted.

3/ Total Forest acres

4/ Total Forest acres

5/ These are estimated number of acres that would be developed in roadless areas there by eliminating the wilderness resource before next plan revision.

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	**Direct Effects**
Wilderness Management	This discussion only deals with the direct effects of wilderness management on the existing Hoover, Carson Iceberg and the Toiyabe portion of the Mokelumne Wilderness. Within all alternatives, the Hoover, Carson Iceberg and Mokelumne addition would be managed according to the same plan. Since this wilderness is already legally established by Congress, it remains a wilderness in all nine alternatives. The three areas contain 135.1 M acres in California. This acreage has managed to (1) retain its wilderness characteristics and (2) to provide wilderness recreation opportunities. As a result of the continued management of these areas as part of the National Wilderness Preservation System, there would be both beneficial and adverse effects. In terms of beneficial effects, (1) the three areas would continue to offer opportunities for solitude and primitive recreation experiences, (2) the wilderness would provide habitat for late successional species (including old growth and dens), (3) these areas would offer unique opportunities for hunting late successional wildlife species and (4) these areas would offer the challenge of fishing in undisturbed streams. In terms of adverse effects, motorized access to the area would continue to be prohibited.
Air Quality	None of the alternatives allow significant degradation of air quality. Uncontrolled wildfire produces the most air pollution on the Forest, and the States recognize that it is unavoidable, occurs only occasionally, and is of short duration. Prescribed fire produces minor air pollution. Burned areas are scattered throughout the forest, are burned at different times and under weather conditions favorable for smoke dispersal. Even with greater prescribed fire under the Market Opportunities Alternative, the smoke could be dispersed without adversely affecting the airshed. Increased vehicle travel allowed under Alternatives B,C,D,E, and G, will add only a very minor volume of additional exhaust fumes and dust into the air. The Air Quality Classification of the whole Forest remains as Class II, with the exception of the Hoover Wilderness, in all alternatives.

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	**Direct Effects**
Possible Conflicts	The Toiyabe National Forest is required to examine possible conflicts between the proposed action and the objective of Federal, Regional, State and local Land Management plans, policies and controls for the area covered in the Forest Plan. Public involvement and review of existing State and local plans of the State of California and Nevada, and numerous Counties affected by the Forest Plan indicate there are no major conflicts between the provisions of the Preferred Alternative and the various other Government Agency Plans. Details are covered in the public involvement record. There are no major conflicts between provisions in the Preferred Alternative and the Resources Planning Act (RPA) Program, as defined by the Regional Guide for the Intermountain Region. The one exception is a reduction in Timber-Program sales offered where there is a volume drop from 8 mmbf(86-90)-9mmbf(1991-2030) in RPA down to the proposed 4.5 mmbf. However, the Toiyabe's actual Sale Program for Fiscal Years 83-84-85 was less than 5 mmbf, so the 4.5 mmbf output is not a significant change in the Actual Program. Every Nevada County has developed or is in the process of developing County Policy Plans for Federal lands under Nevada Senate Bill 40. The preferred alternative was compared to each existing county plan to identify any differences. The preferred alternative appears to be consistent with the various county plans prepared under Nevada Senate Bill 40.
Human and Community Development	All alternatives would provide employment for local residents in manpower programs.
Integrated Pest Management	The forest is highly susceptible to such agents due to the predominance of older-age stands. Although mortality from these agents has been sporadic, the long-term implications are substantial. Additionally, growth loss, particularly from dwarf mistletoe, has had far-reaching effects. Past efforts to prevent or suppress insect and/or disease infestations have been oriented toward "crisis management." When major outbreaks have occurred, salvage or chemical treatment of infected material have been the only significant control measures.

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	Direct Effects
	Direct suppression of an individual forest pest may be appropriate in specific instances to reduce immediate damage or to protect a particular high value resource. Direct control may also be appropriate to eliminate the threat presented by an introduced or exotic pest. However, most insects and diseases are natural agents which become problems only when forest conditions favor the development of epidemic populations. As a result, direct control actions which do not change the forest conditions favoring the insect or disease are rarely successful. In addition, the cost of direct suppression treatments on the scale necessary to protect National Forest resources from insects and diseases are prohibitive. The long range goal in timber and recreation management is to minimize insect and disease impacts utilizing prevention and suppression through silvicultural treatment of susceptible stands. This is based on the premise that susceptibility of trees to insects and disease is primarily a function of age and tree vigor. Silvicultural treatments which remove overmature trees and reduce competition due to overstocking, as well as actual removal of infested trees, tend to increase the vigor of the residual trees and increase resistance to insects and disease. Diversity of stand ages and species is also an important factor in the susceptibility of a forest to insect and disease damage. The greater the diversity of ages and species the more resistant a forest is to damage from any one particular pest. Proper silvicultural management of a forest provides for a distribution of stand ages and species. All alternatives contain activities for the control of insect and disease infestations. During periods of Mountain Pine Beetle epidemics, infested areas would be clearcut. Forest wide methods of providing forest pest control primarily through logging, burning, chemical control or individual tree removal as part of the Timber Stand Improvement (TSI) program. The effect of removing small bug spots (usually not more than ten to twenty acres) should not be significant. If extensive salvage becomes necessary, the effects would be the same as of those described under timber harvesting. Chemical control of bark beetle would be limited to high value areas (such as administrative sites, developed recreation sites, etc).

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	**Direct Effects**
	When used, chemicals would be administered by a licensed Pesticide Applicator. There should be no discernable effects from this extremely limited use of pesticides.
	Insects and disease are a part of the natural forest environment and they will continue to fill their role as agents of change in the ecological process. Tree mortality will continue to occur under all management alternatives, particularly in areas where access, topography, or other resource values preclude intensive management of tree stands. Whether or not this tree mortality is considered as a loss or just natural change must depend upon the existing and future utility of the forest resource.
	Although management actions are being taken in all alternatives to control losses from insects and disease, it is not possible to predict the extent of damage that will eventually result from these infestations. Based on the susceptible condition of the Forest's stands, it can be anticipated that this problem will continue for the foreseeable future. These conditions make silvicultural treatment of timber stands the most immediate need for reducing insect and disease damage.
Paiute Cutthroat and Lahontan Cutthroat Trout	All alternatives contain standards and guidelines for the management of the Lahontan cutthroat trout and the Paiute cutthroat trout in compliance with the U.S. Fish and Wildlife Service Recovery Plan.
Other Threatened and Endangered and Sensitive Species	No other federally threatened or endangered species are known resident breeders on the Toiyabe National Forest. Peregrine Falcons and Bald Eagles historically occurred on the forest. Opportunities to reintroduce Peregrine Falcons exist in all alternatives.
Special Uses and Utility Corridors	All alternatives contain the same management philosophy toward special uses and utility corridors. New special use permits would only be granted when no reasonable alternative existed on private land. There are three principal utility corridors existing on the Toiyabe National Forest. All existing power lines on National Forest land have special use permits,and the nine alternatives would honor these permits. Future need for more utility corridors is expected. Where possible, utility corridors would be combined with established roads to reduce acreage devoted solely to rights-of-way. All applications would be carefully studied to determine impact on resource management, benefit to the public and

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	**Direct Effects**
	alternatives available to the applicant. There should be few significant impacts from special uses or utility corridors under these standards and guidelines.
Research Natural Areas	All alternatives will maintain R.N.A. status for Mt. Jefferson, Carpenter Canyon and add the Babbit Peak area to the system. The Sweetwater R.N.A. would be carried until disestablished because of the significant alteration of the vegetative cover by mining activity over the last 10-15 years.
Growth	Growth or development of private inholdings and subsequent impacts on the National Forests would be minimized through the use of the land adjustment program in all alternatives.
Wild and Scenic River Management	All alternatives will protect the wild, scenic and/or recreation qualities of the East Fork of the Carson River, the West Fork of the Walker River and the East Fork of the Walker River until a formal study is completed and recommendations are made.
Sensitive Plant Species	Timber, range, recreation, wildlife and other land use activities occur on or adjacent to sensitive plant habitat. Management standards and guidelines provide measures to prevent or minimize the impact of any activity on sensitive plant habitat.
Sensitive Animal Species	There are no animal species in Nevada officially recognized by the Regional Forester as sensitive. Unofficially the Toiyabe recognizes as Sensitive those species in the document "A program to Manage and Improve Fish and Wildlife on the National Forest in Nevada." In R-5 (California), in conjunction with California Fish and Game, the Forest recognizes 8 wildlife species that may occur, do occur or historically occurred on the Toiyabe N.F. For the lands the Toiyabe administers in California, (approximately 650,000 acres), the Toiyabe recognizes the same Sensitive Species as R-5. Those Species are: Sierra Red Fox California Bighorn Sheep Fisher Spotted Owl Great Gray Owl Goshawk Willow Flycatcher Pine Marten

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	Indirect Effects
	The Forest would follow F.S. Manual direction to maintain and enhance populations of Sensitive Species.
Wilderness Management	The Hoover, Carson Iceberg, and the Mokelumne Wilderness addition produce a number of beneficial and adverse indirect effects. In terms of beneficial effects, (1) the three areas would preserve the natural ecosystem, (2) the area would retain its wilderness characteristics and (3) the knowledge of the existence of wilderness has a beneficial affect upon many people. In terms of adverse effects, (1) there would be an increase in fuel loading resulting in an increased wildfire hazard, (2) the potential for insect and disease infestation would increase as trees approached their pathological rotation ages, (3) there would be an irretrievable loss of timber volume and (4) portions of the local population would continue to be opposed to the retention of this area as wilderness.
Human and Community Development	All alternatives would indirectly provide additional employment and income through the expenditures of the manpower program enrollees. The indirect effect of this employment and income is described in the social and economic effects of the alternatives.
Intergrated Pest Management	All alternatives except B contain varying roadless acreage recommended for wilderness designation. The designation of any roadless acreage in the Sierra Front would increase the probability of insect and disease infestion in these areas. Additionally, any control of the infestations would only be undertaken when portions of the Forest outside these areas were threatened. Timber management within the roadless areas would be limited to sanitation/salvage removal where possible.
Paiute Cutthroat and Lahontan Cutthroat Trout	There would be no discernable indirect physical or biological effects.
Other Threatened and Endangered Species	There would be no discernable indirect physical or biological effects.
Special Uses and Utility Corridors	The special uses and utility corridors within the alternatives would produce no significant indirect effects upon the human environment.

TABLE IV-2 MANAGEMENT ACTIVITIES WHICH DO NOT VARY SIGNIFICANTLY BETWEEN ALTERNATIVES

Activity/Program	Indirect Effects
Wild and Scenic River Management	All alternatives will protect the wild, scenic and/or recreation qualities of the East Fork of the Carson River, the West Fork of the Walker River and the East Fork of the Walker River until a formal study is completed and recommendations are made.
Wilderness Use	On all roadless areas that are designated for wilderness recommendation within specific alternatives, innovative grazing systems and new approaches to administering livestock use to maintain or enhance wilderness values on areas suitable to livestock grazing.
Sensitive Plant Species	Management activities are adjusted to insure maintenance or enhancement of viable sensitive plant population
Water Quality and Water Quantity	Long term average annual water yield on all alternatives would remain relatively unchanged at approximately 9495 M acre feet with natural fluctuations occuring in response to climate variation. Water yield increase attributable to management are negligable. Water quality would remain near present levels with approximately 98% of the total Forest yield meeting or exceeding State standards. The remaining 2% is attributed to pollution from the Leviathan Mine complex that is mitigated but not expected to meet State standards. Management practices would be kept within water quality compliance requirements through the use of appropriate standard and guidelines.

The remaining activities associated with alternatives are significant and vary with alternatives. The following write up discusses physical, biological, social, and economic direct and indirect effects. The social and economic effects are based on average ANNUAL differences during the first period. A "SOCIAL AND ECONOMIC ANALYSIS" can be found in Appendix B.

ALTERNATIVE A

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Reconstruction of the existing developed recreation sites would occur in the first period only. This alternative would not meet the expected demand for developed recreation for the fifty year planning horizon.

The capacity and service level provided at campgrounds and picnic areas would decline slightly. This alternative would operate 70 percent of the existing sites at full service and 30 percent at reduced service. Over the fifty year period, the existing sites would be increasingly over used. The over usage could result in resource damage and facility deterioration. In conjunction with the damage, the overall quality of experience could decline. Facilities supporting the dispersed recreation resource could deteriorate, with sanitation problems, littering and resource damage. Opportunity for dispersed recreation would decline over time. Overall resource damage from Off Road Vehicle use is expected to slightly decrease over the current situation due to the additional acres closed (mainly from wilderness designation).

Construction or reconstruction on developed sites removes some vegetation, disturbs the soil and may displace domestic livestock and some wildlife species. Human use of recreation sites causes additional loss of vegetation, soil compaction and stream bank deterioration. These sites are often located within or adjacent to riparian zones and the above mentioned impacts would increase in alternatives that do not meet developed recreation demand as the existing sites would not be improved or upgragded and few if any new sites are constructed. Most effects of human use can be mitigated by hardening the site or adding facilities to protect it.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be significant. Of the 3171.7 M acres of visual quality classifications inventoried, 176,000 acres would move to a lower classifications due to resource activities. This results from the same level of timber harvesting and the same coordination/enforcement of mineral operating plans as is currently being done.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a moderate to high risk of cultural resource damage, a moderate necessity to respond to other resource actitivies, a moderate ability to respond to other resource activities, and an emphasis on project related work.

Minerals would continue to have the greatest impact on cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any neccessary mitigation.

The cultural resource program would address project related work only based on isses, values, and risks. No forestwide inventory would be conducted outside of project level work. Only one property would be nominated to the National Register every 5 years until potential is reached. Enhacement of properties would be done only after meeting project mitigation and protection needs.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 46 million cubic feet of timber over the fifty year planning horizon. There would be 15,490 acres regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 1.06 million cubic feet would be achieved by the 20th period. The Toiyabe National Forest would have 48,317 acres suitable for timber. This alternative would have 11,580 acres of natural regeneration and 3,910 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 56,329 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base.

Unwanted vegetation is a forest pest, controlled by using integrated pest management strategies. Silvicultural, biological, chemical (herbicides) and mechanical means would be used to achieve resource management objectives. All methods would be used in an economically and environmentally acceptable manner.

There would be a moderate opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be decreasing due to increase timber harvesting. This would result in less of a chance of an epidemic due to overmature stands of timber.

Vegetative management practices are used on the Toiyabe National Forest to control weeds during forest stand establishment and to improve wildlife habitat and the growth of established stands. Various methods would be used to control undesirable vegetation. The type of site preparation used in this alternative would be dependent upon site conditions (number of stems per acre, for instance) in areas recieving cultural treatments.

--Indirect Effects--

Continued supply of timber at the current level would support the local mills.

The control of vegetation through management practices would result in a reduction of competition, an increased rate of survival and an increased growth rate for the favored species.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 50.9 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 7.3 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stabilized. The overall condition of the Arterial and Collector road system would remain the same. Maintenance would remain constant, which would maintain the same level of safety and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 104.2 miles of new local road construction for the fity year period. Reconstruction of local roads would average 2.9 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would remain the same as the current situation. Maintenance would remain the same, which would maintain the same level of safety and resource degradation associated with these roads. The same construction of new local roads as the present situation would result in the same impact on the local wildlife population.

This alternative would have 209.8 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. It is estimated that 60 M to 120 M acres would require 54 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LAND PURCHASE ACQUISITION AND ADJUSTMENT

--Direct Effects--

This alternative contains a land adjustment plan which permits the adjustment of National Forest system lands to accommodate the goals and objectives of this alternative. Land adjustment would be used in part to consolidate federal ownership to increase efficiency of multiple resource management. Land exchange would total 18,000 acres for the fifty year period.

--Indirect Effects--

Land consolidation and acquisition would permit better management of all resources as the Forest Service has better control over consolidated blocks of land.

Land consolidation would also reduce impacts from adjacent private ownership.

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would increase 5% over estimated natural levels. Soil and water improvement acres would total 665 acres over the fifty year period. Long term soil productivity will not be maintained on 15% of the forests rangeland due to expected poor and very poor range conditions through the end of the planning period.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 209.8 M acres of roadless areas being designated for recommendation as wilderness. Use would average 4,424,000 RVDs per period for the fifty year period.

--Indirect Effects--

The removal of this acreage from the timber or mineral exploration base would result in a decrease in timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for addition information.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 4,920,000 AUM's of domestic livestock grazing and 212,000 AUM's of wild free-roaming horses and burro's over the fifty year period. About 85 percent of the range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 60 percent of the acres, with intensive management of the remaining 40 percent.

All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would remain uncontrolled.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030.

The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetation within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long-term the condition of the riparian areas would be maintained.

--Indirect Effects--

Completion of Allotment Management plans would better facilitate use of the existing range resource.

The control of vegetation through vegetation management practices would result in a reduction of competition, an increased rate of survival and an increased growth rate for the favored species.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 4,124,000 WFUDS in the first period to 4,487,000 WFUDS in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDS in the general forest area would increase from 3,381,890 to 4,104,890, while WFUDS in the wilderness areas would average 742,100 WFUDS per period. About 99,000 acres of wildlife habitat improvement would be done during the fifty year period. This increase of improvement acres over time could have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would have a slight decrease by 20% in the first period to 40% in the fifth period. This decrease would be caused by increased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and a slight decline in the quality of hunting and fishing.

There would be slight decline in non-consumptive WFUDs of species requiring den and old growth habitat.

DIVERSITY

--Direct Effects--

Overall diversity would be the same, but, there would be more younger timber stands and less mature/old growth. The average age for the working group on the forest is: 86 years for Mixed Conifer, 106 years for Jeffrey Pine and 159 years for Lodgepole. This would decrease habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker.

Soil productivity and vegetative complexes in riparian areas would be negatively impacted as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, decline. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative. Wildfire would occur on 4200 acres annually and would reduce existing diversity.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily timber harvesting and mineral explortation). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 12,600 operating plans for the 50 year period. Approximately seventy percent of the operating plans would have compliance checks by 2030. Total disturbance would be 33,100 acres for the fifty year period, while 31,445 acres would be reclaimed. There would be 149,019 acres of high mineral potential land designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 209.8 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining. Within this alternative, 60 M acres to 120 M acres not designated as wilderness may be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation in the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 209.8 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor, their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing in 1893.0 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness characteristics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 60 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,210 person caused fires, 210,000 acres burned by wildfires and $65 million cost plus Net Value Change. Also there would be 32,750 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could decrease due to increased timber harvesting in this alternative. This moderate timber program would result in a decline of overmature timber stands. The above situation, in conjunction with increased access to National Forest lands and private in holdings, could result in a reduced threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources, prescribed burning would be used to maintain natural vegetative diversity on 209.8 M acres designated for wilderness recommendation.

ALTERNATIVE B

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Construction of seventeen new sites and reconstruction of the existing developed recreation sites would provide for 5855 PAOT. Construction of 66 miles of new trails would enhance the dispersed recreation resource. This alternative would meet expected developed recreation demand for fifty years.

The capacity and service level provided at campgrounds and picnic areas would increase. This alternative would operate 100 percent of the existing sites at full service. Opportunity for dispersed recreation would increase. Overall resource damage is expected to increase over the current situation from Off Road Vehicle use due to more acres opened and not restricted (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be moderate. Of the 3171.7 M acres of visual quality classifications inventories, 108,000 acres would move to lower classifications due to resource activities. This results from increase in timber harvesting.

--Indirect Effects--

There would be an increase in awareness by the public of a change in what they perceive as scenic quality where timber is harvested.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a high risk of cultural resource damage, a high necessity to respond to other resource actitivies, a moderate to high ability to respond to other resource activities, and an emphasis on project related work and programmatic forestwide inventory.

Increased funding for minerals management also increases ability to accomplish cultural resource work thereby reducing the potential risk to cultural resources. Cultural resource management would affect minerals operations because of potential delays and increased costs for any necessary mitigation. An emphasis on developed recreation, range improvements, and sawtimber harvest would increase potential risk to cultural resources. Increased funding in these areas would increase the ability to manage cultural resource in relation to these elements. Cultural resource management would affect developed recreation, range improvements, and sawtimber harvest through potential delays and additional costs for any necessary mitigation. The potential public informational and educational opportunity from interpretation of identified cultural resources would enhance developed recreation.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated to the National Register every two years until potential is reached. Enhacement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 93.2 million cubic feet of timber over the fifty year planning horizon. Some 38,830 acres would be regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 2.10 million cubic feet would be achieved by the 20th period. About 82,795 acres of the Toiyabe National Forest would be suitable for timber. This alternative would have 30,580 acres of natural regeneration and 8,250 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 40,495 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base.

There would be a great opportunity to use intergrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be decreasing due to increased timber harvesting. This would reduce risk of an epidemic due to overmature stands of timber.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the reforestation program would average 100% more reforested acres per annum.

--Indirect Effects--

An increased quantity of medium to large high quality sawlogs would be available for the local mills.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 146.1 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 31.1 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stabilized. The overall condition of the Arterial and Collector road system would increase over the current situation. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 232.5 miles of new local road construction for the fity year period. Reconstruction of local roads would average 5.1 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stabilized. The overall condition of the local road system would increase over the current situation. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads.

Increased construction of new local roads over the present situation would result in a greater impact on the local wildlife population.

This alternative would have no acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 77 thousand to 155 thousand acres would require approximately 70 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LAND PURCHASES, ACQUISITION AND ADJUSTMENTS

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 40,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Long term soil productivity on 99% of the total forest land base would be maintained. The remaining consists of land permanently taken out of production, i.e. roads, facilities, mines, acres in the watershed improvement backlog, etc. Soil erosion resulting primarily from timber management activities in the Sierra would increase 23% over estimated natural levels. All soil disturbing management activities are designed to maintain soil erosion within soil loss tolerance limits through use of appropriate standards and guidelines. Soil and water improvement acres would total 2870 acres over the fifty year period.

WILDERNESS USE

--Direct Effects--

Wilderness use would remain constant as a result of no acres of roadless areas being designated for recommendation as wilderness. Use would average from 1,001,000 RVDs for the fifty year period.

--Indirect Effects--
There would be no discernable indirect physical or biological effects. See locatable minerals, indirect effects for additional information.

RANGE

--Direct Effects--
Toiyabe National Forest would have available 5,020,100 AUM's of domestic livestock grazing and 375,000 AUM's of wild free-roaming horses and burro's. About 95 percent of suitable range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 30 percent of the acres, with intensive management of the other 70 percent. Use of riparian areas would remain similiar to alternative A but conditions would improve due to improvement management systems. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be uncontrolled.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average 5% more treated acres per annum.

Of the 585,700 acres of suitable range lands, 95% could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetations within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--
Conflicts between wildlife/livestock use would decrease. Completion of Allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--
Total wildlife and fish user-days would increase from 4,964,000 WFUDS in the first period to 6,486,000 WFUDS in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDS in the general forest area would increase from 4,759,920 to 6,281,920, while WFUDS in the wilderness areas would average 204,080 WFUDS per period. About 165,000 acres of wildlife habitat improvement would be done during the fifty year period. This increase of improvement acres over the current programs could have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would decrease by 60% in the first period to 90% in the fifth period. This decrease would be caused by the increased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained.

Some populations would be at threshold levels and would not occur in some areas. Elk population in central Nevada is expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and a significant decrease in the quality of hunting and fishing. There would be decreases in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would decrease over the current situation in this alternative. As increased timber harvesting occurs, the existing stands of old growth would be converted to younger stands of varing ages. The loss of these older stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring younger stands. The average age for the working groups are: 119 years for Mixed Conifer, 91 years for Jeffrey Pine and 120 years for Lodgepole Pine. This would decrease habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker.

Soil productivitiy and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative. Prescribed burns for wildlife would burn an estimated 564 acres annually and would improve existing diversity.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily timber harvesting). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 13,200 operating plans for the 50 year period. Approximately 70 percent of the operating plans would be brought in compliance by 2030. Total disturbance would be 34,700 acres for the fifty year period, while 32,965 acres would be reclaimed. No acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights.

This alternative would have no acres designated for wilderness recommendation. Within this alternative, 77 M to 155 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation in the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of zero acres for wilderness recommendation would not remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor, their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing in 2102.8 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness characteristics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 100 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,050 person-caused fires, 28,200 acres burned by wildfires and $68 million cost plus Net Value Change. Also there would be 68,090 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Serria Front may decrease due to increased timber harvesting in this alternative. This high timber program would result in a decline of overmature timber stands. The above situation, in conjunction with increased access to National Forest lands and private in-holdings, could result in a reduced risk from a major fire.

ALTERNATIVE C

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. No new construction or reconstruction of developed sites or dispersed recreation trails would be done in this alternative. There would be 17.4 miles of new trail construction that would enhance the dispersed recreation resource. New trail head construction would result in 200 PAOT. This alternative would not meet expected developed recreation demands.

The capacity and service level provided at campgrounds and picnic areas would decrease. This alternative would operate 54 percent of the existing sites at full service and 46 percent at reduced service. Over the fifty year period, the existing sites would be increasingly over used. The over usage could result in resource damage and facility deterioration. In conjunction with the damage, the overall quality of experience could decline. Facilities supporting the dispersed recreation resource could deteriorate with sanitation problems, littering and resource damage. Opportunity for dispersed recreation would decrease. Over all resource damage is expected to decrease over the current situation from Off Road Vehicle use due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be minor. Of the 3171.7 M acres of visual quality classifications inventoried, 90,400 acres would move to lower classifications due to resource activities. This results from less timber harvesting and more coordination/enforcement of mineral operating plans.

--Indirect Effect--

There would be no discernable indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a moderate risk of cultural resource damage, a moderate necessity to respond to other resource actitivies, a moderate to high ability to respond to other resource activities, and an emphasis on project related work and programmatic, forestwide inventory.

Minerals would continue to have the greatest impact on cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

Wildlife habitat improvement particularly in pinyon-juniper would increase risk to cultural resources because of high sensitivity in that environment. Cultural resource management would affect habitat improvement by additional time and funding required for any necessary mitigation. It could also limit improvement practices in some areas.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated to the National Register every two years until potential is reached. Enhancement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 15.5 million cubic feet of timber over the fifty year planning horizon. About 7,830 acres would be regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 1.41 million cubic feet would be achieved by the 20th period. There would be 65,663 acres of the Toiyabe National Forest suitable for timber. This alternative would have 5,180 acres of natural regeneration and 2,650 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 60,080 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base.

There would be a low opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be increasing due to reduce timber harvesting. This would result increased riskce of an epidemic due to overmature stands of timber.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the reforestation program would average 45% less reforested acres per annum.

--Indirect Effects--

A decrease in available supply of timber products for the local mills may affect the economy of local communities.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 8.8 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 17.7 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the arterial and collector road system would slightly increase over the current situation. Maintenance would slightly increase, which could reduce safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 13.9 miles of new local road construction for the fifty year period. Reconstruction of local roads would average 1.2 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would slightly increase over the current situation. Maintenance would slightly increase, which could reduce safety problems and resource degradation associated with these roads. Less construction of new local roads over the present situation would result in less impact on the local wildlife population.

This alternative would have 1,113.6 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 40 M to 80 M acres would require approximately 36 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LAND PURCHASES, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 18,000 acres for the fifty year period.

Priority for land adjustment would be to acquire areas suitable for key wildlife habitat requirements, dispered recreation and increased public ownership.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber managment activities in the Sierra would increase 2% over estimated natural levels. Improvement acres for soil and water work would total 1,290 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for Alternative B.

WILDERNESS USE

--Direct Effects--
Wilderness use would increase as a result of the 1,113.6 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 9,341,000 in the first period to 10,762,000 in the fifth period.

--Indirect Effects--
The removal of this acreage from the timber or mineral exploration base would result in a decrease in timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for addition information.

RANGE

--Direct Effects--
Toiyabe National Forest would have available 4,607,000 AUM's of domestic livestock grazing and 335,270 AUM's of wild free-roaming horses and burro's for the fifty year period. About 90 percent of the range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 50 percent of the acres, with intensive management of the other 50 percent.

Decreased use of Riparian areas for grazing purpose would occur in this alternative. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be uncontrolled.

Vegetative management practives would remain the same as alternative A (the "no action" alternative).

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetation within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long-term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--
Conflicts between wildlife/livestock use would decrease. Completion of Allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--
Total wildlife and fish user-days would increase from 5,247,000 WFUDS in the first period to 6,915,000 WFUDS in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDS

in the general forest area would increase from 3,467,000 to 5,135,000. WFUDS in the wilderness areas would average 1,780,000 WFUDS per period. About 111,960 acres of wildlife habitat improvement would be done during the fifty year period. This increase of improvement acres over the current programs would have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would increase by 1% in the first period to 20% in the fifth period. This increase would be caused by the decreased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and an increase in the quality of hunting and fishing.

There would be significant increases in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would remain the same as the current situation in this alternative. Timber harvesting in this alternative will result in a balance of age classes. These ages would provide for habitat for both species requiring younger stands and species requiring older stands. The average age for the working groups are: 259 years for Mixed Conifer, 169 years for Jeffrey Pine and 281 years for Lodgepole Pine.

This would increase habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire would occur on 2,340 acres annually and would reduce existing diversity.

Soil productivity and vegetative complexes in riparian areas would be improved as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, increase. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (wildlife management activities). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 11,850 operating plans over the 50 year period.

Approximately 70 percent of the operating plans would be brought in compliance by 2030. Total disturbance would be 23,170 acres for the fifty year period, while 20,853 acres would be reclaimed. Some 356,288 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 1,113.6 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed for mining. Within this alternative, 40 M to 80 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 1,113.6 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects

Leasing in 989.2 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness characteristics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 70 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,200 person caused fires, 117,000 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 53,830 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could increase due to reduced timber harvesting in this alternative. This low timber program would result in an increase of overmature timber stands. The above situation, in conjunction with decreased access to National

Forest lands and private in holdings could result in a slight increase of threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources, prescribed burning would be used to maintain natural vegetative diversity on 1113.6 M acres designation for wilderness recommendation.

ALTERNATIVE D

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Construction of fourteen new developed recreation sites and reconstruction of existing developed recreation sites would result in an additional 5,574 PAOT over the fifty year period. Construction of 24.6 miles of dispersal recreation trails would enhance the dispersed recreation resources. This alternative would meet the expected developed recreation demand.

The capacity and service level provided at campgrounds and picnic areas would increase. This alternative would operate 100 percent of the existing sites at full service. Opportunity for dispersed recreation would increase. Over all resource damage is expected to decrease over the current situation from Off Road Vehicle use due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be moderate. Of the 3,171.7 M acres of visual quality classifications inventoried, 124,000 acres would move to a lower classification due to resource activities. This results from an increase in timber harvesting.

--Indirect Effects--

There would be an increase in awareness by the public of a change in what they perceive as scenic quality where timber is harvested.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a high risk of cultural resource damage, a high necessity to respond to other resource actitivies, a moderate to high ability to respond to other resource activities, and an emphasis on project related work.

Minerals would continue to have the greatest impact on cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

An emphasis on developed recreation and habitat improvement would increase potential risk to cultural resources. Increased funding in these areas would increase the ability to manage cultural resources in relation to these elements. Cultural resource management would affect developed recreation and habitat improvement through potential delays and additional costs for any necessary mitigation. The potential public informational and educational opportunity from interpretation of identified cultural resources would enhance developed recreation.

The cultural reousrce program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated to the National Register every two years until potential is reached. Enhancement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 69.5 million cubic feet of timber over the fifty year planning horizon. About 24,860 acres would be regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 1.83 million cubic feet would be achieved by the 20th period. Some 79,229 acres of the Toiyabe National Forest would be suitable for timber. This alternative would have 18,660 acres of natural regeneration and 6,200 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 48,710 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base.

There would be opportunity to use intergrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be decreasing due to increased timber harvesting. This would result in less of a chance of an epidemic due to overmature stands of timber.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the reforestation program would average 49% more reforest acres per annum.

--Indirect Effects--

An increased quantity of medium to large high quality sawlogs would be available for the local mills.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 116.4 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 29.8 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the arterial and collector road system would increase over the current situation. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 115.0 miles of new local road construction for the fifty year period. Reconstruction of local roads would average 3.6 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would improvee over the current situation.

Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. Increased construction of new local roads over the present situation would result in a greater impact on the local wildlife population.

This alternative would have 592.7 acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 55 M to 110 M acres would require approximately 50 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resources and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LAND PURCHASE, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 60,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would increase 13% over estimated natural levels. Improvement acres for soil and water work would total 1,225 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 592.7 acres of roadless areas being designated for recommendation as wilderness. Use would increase from 5,842,000 RVDs in the first period to 6,936,000 in the fifth.

--Indirect Effects--
The removal of this acreage from the timber or mineral exploration base would decrease timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for additional information.

RANGE

--Direct Effects--
Toiyabe National Forest would have available 4,950,000 AUM's of domestic livestock grazing and 270,000 AUM's of wild free-roaming horses and burro's for a fifty year period. About 90 percent of suitable range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 45 percent of the acres, with intensive management of the other 55 percent.

Use of Riparian areas would remain the same but conditions would improve due to improved management systems. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be uncontrolled.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetations within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity. Vegetative management practices would remain the same as alternative A (the "no action" alternative).

--Indirect Effects--
Conflicts between wildlife/livestock use would decrease. Completion of Allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--
Total wildlife and fish user-days would increase from 5,473,000 WFUDS in the first period to 7,380,000 WFUDS in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDS in the general forest area would increase from 4,493,980 to 7,720,131, while WFUDS in the wilderness areas would increase from 979,020 to 1,098,690. About 144,920 acres of wildlife habitat improvement would be

done during the fifty year period. This increase of improvement acres over the current programs could have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres if old growth habitat on the Forest. Animals requiring den/old growth habitat would decrease by 30% in the first period to 50% in the fifth period. This decrease would be caused by the increased harvesting of mature/old growth conifer type. Viable population of all native vertebrate and plant species would be maintained. Some population would be at threshold level and would not occur in some areas. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and a slight decline in the quality of hunting and fishing. There would be a decrease in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would decreased over the current situation in this alternative. As increased timber harvesting occurs, the existing stands of old growth would be converted to younger stands of varing ages. The loss of these older stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring younger stands. The average age for the working groups are: 147 years for Mixed Conifer, 95 years for Jeffrey Pine and 150 years for Lodgepole Pine.

This would decrease habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire would occur on 2,234 acres annually and would reduce existing diversity.

Soil productivitiy and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest, and these habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily timber harvesting and mineral exploration). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral acitivities could result in 12,600 operating plans over the 50 year period. Approximately seventy percent of the operating plans would have compliance checks by 2030. Total disturbance would be 27,470 acres for the fifty year period, while 26,096 acres would be reclaimed. Some 233,318 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 592.7 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining.

Within this alternative, 55 M to 110 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 592.7 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing on 1510.1 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness characteristics on probably
10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 70 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 960 person caused fires, 116,700 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 54,420 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could decrease due to increasing timber harvesting in this alternative. This high timber program would result in a decline of overmature timber stands. The above situation, in conjunction with increased access to National Forest lands and private in holdings, could result in a reduced hazard from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 592.7 M acres designation for wilderness recommendation.

ALTERNATIVE E

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. There would be four new developed recreation sites and some reconstruction of developed recreation sites. No dispersed recreation trail work would be done in this alternative. This alternative would not meet the expected demand for developed recreation. New trail head construction would accommodate 221 PAOT.

The capacity and service level provided at campgrounds and picnic areas would decrease. This alternative would operate 60 percent of the existing sites at full service and 40 percent at reduced service. Over the fifty year period, the existing sites would be increasingly over used. The over usage could result in resource damage and facility deterioration. In conjunction with the damage, the overall quality of experience could decline. Facilities supporting the dispersed recreation resource could deteriorate, with sanitation problems, littering and resource damage. Opportunity for dispersed recreation would decrease. Over all resource damage is expected to decrease over the current situation from Off Road Vehicle use due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be moderate. Of the 3,171.7 M acres of visual quality classifications inventoried, 148,000 acres would move to a lower classifcation due to resource activities. This results from moderate coordination/enforcement of mineral operating plans.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a moderate risk of cultural resource damage, a moderate necessity to respond to other resource actitivies, a low ability to respond to other resource activities, and a minimal emphasis on project related work.

Increased funding for minerals management also increases ability to accomplish cultural resource work thereby reducing the potential risk to cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

Impact from grazing and other resource activities would be minimal because of reduced operations.

Risk of natural deterioration and vandalism to cultural resources would increase.

The cultural resource program would be project related only with maximum use of paraprofessionals. No forestwide inventory would be conducted. No property would be nominated to the National Register. No interpretive or enhancement would be conducted; protection would be accomplished at the project level only.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest no timber over the fifty year planning horizon. There are no lands considered suitable for timber harvest under this alternative.

There would be little or no opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be increasing due to no timber harvesting. This would increase risk of an epidemic due to overmature stands of timber.

--Indirect Effects--

Lack of timber products for local mills could affect the economy of local communities.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve no miles of new arterial or collector road construction for the fifty year period. No existing arterial and collector roads would be reconstructed over the fifty year period. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stabilized. The arterial and collector road system would deteriorate. Maintenance would decrease, which could increase safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve no new local road construction for the fifty year period, and no reconstruction of local roads would be done. The overall condition of the local road system would deteriorate. Maintenance would decrease, which could increase safety problems and resource degradation associated with these roads. No construction of new local roads over the present situation would result in less of an impact on the local wildlife population.

This alternative would have 306.1 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 60 to 120 M acres would require approximately 45 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other rescurce and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LAND PURCHASE, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no acticn" alternative). Land exchange would total 13,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would not increase over estimated natural levels. Improvement acres for soil and water work would total 525 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 306.1 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 7,390,000 RVDs in the first period to 8,195,000 in the fifth period.

--Indirect Effects--

The removal of this acreage from the timber or mineral exploration base would result in a decreased timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for additional information.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 4,753,000 AUM's domestic livestock grazing and 231,000 AUM's for wild free-roaming horses and burros. About 90 percent of suitable rangelands are expected to be in satisfactory condition by 2030.

Extensive management would occur on 55 percent of the acres, with intensive management of the remaining 45 percent. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be uncontrolled.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average the same treated acres per annum.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetation within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long-term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--

Completion of Allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 4,351,000 WFUDs in the first period to 5,139,000 WFUDs in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDs in the general forest area would increase from 3,571,230 to 4,359,230, while WFUDs in the wilderness areas would average 779,770 WFUDs per period. There would be 135,430 acres of wildlife habitat improvement done during the fifty year period. This decrease of improvement acres over the current programs could have a negative impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would increase by 1 percent in the first period to 20 percent in the fifth period. This increase would be caused by the decreased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall decrease in opportunities for hunting and fishing and an increase in the quality of hunting and fishing. There would be an increase in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for Alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would increase slightly over the current situation in this alternative until the existing younger stands grow older. As the forest moves toward all old/mature growth, overall diversity will decrease over the current situation. The loss of younger stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring older stands. The average age for the working groups are: 257 years for the Mixed Conifer, 268 years for Jeffrey Pine and 257 years for Lodgepole Pine.

This would increase habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire could occur on 1,500 acres annually and would reduce existing diversity.

Soil productivitiy and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily mineral exploration). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 11,900 operating plans over the 50 year period. Approximately sixty-five percent of the operating plans would have compliance checks by 2030. Total disturbance would be 33,100 acres for the fifty year period, while 28,135 acres would be reclaimed. Some 149,019 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 306.1 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining. Within this alternative, 60 to 120 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERALS

--Direct Effects--

The designation of 306.1 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production.

See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. These effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing in 1,796.7 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness characteristics.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 80 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,170 person caused fires, 75,000 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 39,230 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could increase due to no timber harvesting in this alternative. The lack of a sawtimber timber program would result in an increase of overmature timber stands. The above situation, in conjunction with decreased access to National Forest lands and private in holdings, could result in an increased threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 306.1 M acres designated for wilderness recommendation.

ALTERNATIVE P

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Construction of twelve new sites and the reconstruction of the existing developed recreation sites would accommodate 5,150 PAOT. The construction of 40.9 miles of dispersed recreation trails would enhance the dispersed recreation resource. This alternative would meet the expected demand for developed recreation.

The capacity and service level provided at campgrounds and picnic areas would increase. This alternative would operate 100 percent of the existing sites at full service. Opportunity for dispersed recreation would increase. Overall resource damage is expected to increase over the current situation from Off Road Vehicle use due to less acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects

There would be no discernable indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be minor. Of the 3,171.4 M acres of visual quality classifications inventoried, 88,000 acres would move to a lower classification due to resource activities. This results from less timber harvesting and better coordination/enforcement of mineral operating plans.

--Indirect Effects

There would be no discernable indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a moderate risk of cultural resource damage, a moderate necessity to respond to other resource activities, a high ability to respond to other resource activities, and an emphasis on project related work with some programmatic targets.

Increased funding for minerals management also increases ability to accomplish cultural resource work thereby reducing the potential risk to cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

An emphasis on developed and dispersed recreation and wildlife improvements would increase potential risk to cultural resources. Increased funding in these areas would increase the ability to manage cultural resources. Cultural resource management would affect developed and dispersed recreation and wildlife improvements through potential delays and additional costs for any necessary mitigation. The potential public informational and educational opportunity from interpretation of identified cultural resources would enhance developed and dispersed recreation. Increased dispersed recreation management would decrease potential risk to cultural resources from vandalism.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated to the National Register every two years until potential is reached. Enhancement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 34.7 million cubic feet of timber over the fifty year planning horizon. About 13,070 acres would be regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 1.54 million cubic feet would be achieved by the 20th period. There would be 70,583 acres of the Toiyabe National Forest suitable for timber. This alternative would have 9,480 acres of natural regeneration and 3,590 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 48,710 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base. This alternative has the lowest growth of all alternatives.

There would be a moderate opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be decreasing slightly due to moderate timber harvesting. This would result in a moderate chance of an epidemic due to overmature stands of timber.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the reforestation program would average 16% less reforested acres per annum.

--Indirect Effects--

Continued supply of timber at present levels would support the local mills.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

This alternative would involve 36.5 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 18.7 miles per year. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the arterial and collector road system would improve. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

This alternative would involve 59.9 miles of new local road construction for the fifty year period. Reconstruction of local roads would average 2.5 miles per year. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would improve. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. Less construction of new local roads over the present situation would result in reduced impact on the local wildlife population.

This alternative would have 211.5 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 73 to 146 M acres would require approximately 54 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LAND PURCHASE, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 35,000 acres for the fifty year period.

A major priority for land adjustment would be to aquire areas suitable for key wildlife habitat requirements and increase public onwership.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would increase 5% over estimated natural levels. Improvement acres for soil and water work would total 1,675 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 180.5 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 6,070,000 RVDs in the first period to 6,878,000 RVDs in the fifth.

--Indirect Effects--

The removal of this acreage from the timber or mineral exploration base would result in decreased timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for additional information.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 4,931,000 AUM's of domestic livestock grazing and 255,000 AUM's of wild free-roaming horses and burros over the fifty year period. About 95 percent of suitable range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 45 percent of the acres, with intensive management of the other 55 percent. Less use of Riparian areas for grazing purpose would occur in this alternative. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be controlled.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average 5% more of treated acres per annum.

Of the 585,700 acres of suitable range lands, 95 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetation within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--

Conflicts between wildlife/livestock use would decrease. Completion of allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 5,363,000 WFUDs in the first period to 7,051,000 WFUDs in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDs in the general forest area would increase from 4,594,110 to 6,282,110, while WFUDs in the wilderness areas would average 809,000 per period.

There would be 150,000 acres of wildlife habitat improvement done during the fifty year period. This increase of improvement acres over the current programs could have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would slightly increase by 15 percent in the first period to 35 percent in the fifth period. This increase would be caused by the decreased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and a slight decrease in the quality of hunting and fishing.

There would be a slight increase in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would remain the same as the current situation in this alternative. Timber harvesting in this alternative will result in a balance of age classes. These ages would provide for habitat for both species requiring younger stands and species requiring older stands. The average age for the working groups are: 153 years for Mixed Conifer, 152 years for Jeffrey Pine and 279 years for Lodgepole Pine.

This would maintain habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire could occur on 564 acres and diversity will improve.

Soil productivitiy and vegetative complexes in riparian areas would be improved as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, increase. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily timber harvesting and mineral exploration). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 12,069 operating plans over the 50 year period. Approximately eighty percent of the operating plans would have compliance checks by 2030. Total disturbance would be 32,070 acres for the fifty year period, while 30,466 acres would be reclaimed. Some 40,447 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 211.5 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining.

Within this alternative, 73 to 156 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 211.5 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing on 1,891.3 M acres of roadless areas not designated as wilderness could cause the destruction of wilderness characteristics on 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 100 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,130 person caused fires, 28,200 acres burned by wildfires and $68 million cost plus Net Value Change. Also there would be 61,510 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could decrease due to moderate timber harvesting in this alternative. This moderate timber program would result in an slight decline of overmature timber stands. The above situation, in conjunction with increased access to National Forest lands and private in holdings, could result in a reduced threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 211.5 M acres designated for wilderness recommendation.

ALTERNATIVE F

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. There would be three new developed recreation sites and some reconstruction of developed recreation sites would occur in this alternative. The construction of 14.2 miles of dispersed recreation trails would enhance the dispersed recreation resource. New trail head construction would accommodate 440 PAOT. This alternative would not meet expected developed recreation demand.

The capacity and service level provided at campgrounds and picnic areas would decrease. This alternative would operate 53 percent of the existing sites at full service and 47 percent at reduced service. Over the fifty year period, the existing sites would be increasingly over used. This over usage could result in resources damage and facility deterioration. In conjunct with the damage, the overall quality of experience could decline. Opportunity for dispersed recreation would increase. Over all resource damage is expected to decrease over the current situation from Off Road Vehicle use due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Direct Effects--

There would be no discernible indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be moderate. Of the 3,171.4 M acres of visual quality classifications inventoried, 108,000 acres would move to a lower classifcation due to resource activities. This results from moderate coordination/enforcement of mineral operating plans.

--Indirect Effects--

There would be no discernable indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a low risk of cultural resource damage, a low necessity to respond to other resource actitivies, a moderate ability to respond to other resource activities, and an emphasis on project related work and programmatic targets.

Wilderness designation of this acreage could provide protection from ground disturbing activities which could result in beneficial effects. Wilderness desination would limit some kinds of cultural reosurce investigation because no mechanical means would be allowed for survey and excavation. Excavation and stabilization would have to be fully justified and conform to wilderness values. No on-site signing would be allowed. Cultural resource management would affect wilderness management by potentially requiring additional funding and time to monitor natural deterioration and vandalism at significant sites.

Minerals would continue to have an impact on cultural resources but there would be an over-all decline in risk because of wilderness. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated to the National Register every two years until potential is reached. Enhancement of properties would increase beyond project mitigation and protection but no on-site signing would be allowed in wilderness.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest no timber over the fifty year planning horizon. There are no suitable timber acres in this Alternative.

There would be little or no opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be increasing due to no timber harvesting. This would result in high chance of an epidemic due to overmature stands of timber.

--Indirect Effects--

Lack of timber products for local mills could affect the economy of local communities.

ARTERIAL AND COLLECTOR CONST/RECONST

--Direct Effects--

This alternative would involve no miles of new arterial or collector road construction for the fifty year period. No existing arterial and collector roads would be reconstructed. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablized. The overall condition of the arterial and collector road system would deteriorate. Maintenance would decrease, which could increase safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve no miles of new local road construction for the fifty year period. No reconstruction of local roads would occur in this alternative. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablized. The overall condition of the local road system would decrease over the current situation. Maintenance would increase, which could increase safety problems and resource degradation associated with these roads. Less construction of new local roads over the present situation would result in a less of an impact on the local wildlife population.

This alternative would have 1,992.2 M acres designated for wilderness recommendation.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LAND PURCHASE, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition or adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 30,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would not increase over estimated natural levels. Improvement acres for soil and water work would total 965 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 1,992.2 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 10,593,000 RVDs in the first period to 12,368,000 in the fifth period.

--Indirect Effects--

The removal of this acreage from mineral exploration could result in a decrease in mineral production.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 4,615,000 AUM's of domestic livestock grazing and 276,000 AUM's of wild free-roaming horses and burros. About 90 percent of suitable rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 50 percent of the acres, with intensive management of the other 50 percent.

Decreased use of riparian areas for grazing purpose would occur in this alternative. All allotments would be placed under an approved management plan by 1995. Noxious farm weeds would be uncontrolled.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average the same treated acres per annum.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetations within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--

Conflicts between wildlife/livestock use would decrease. Completion of allotment management plans would better facitate use of the existing range resource.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 4,950,000 WFUDs in the first period to 6,703,000 WFUDs in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDs in the general forest area would increase from 2,620,600 to 4,040,740, while WFUDs in the wilderness areas would increase from 2,329,400 to 2,662,260. About 66,460 acres of wildlife habitat improvement would be done during the fifty year period. This decrease of improvement acres over the current programs could have a negative impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would increase by 5% in the first period to 35% in the fifth period. This increase would be caused by the decreased harvesting of mature/old growth conifer type. Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas. Elk populations in central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and an increase in the quality of hunting and fishing.

There would be an increase in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would increase slighty over the current situation in this alternative until the existing younger stands grow older. As the forest moves toward all old/mature growth, overall diversity will decrease over the current situation. The loss of younger stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring older stands. The average age for the working groups are: 277 years for Mixed Conifer, 245 years for Jeffrey Pine and 275 years for Lodgepole Pine.

This would increase habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire could occur on 2,334 acres annually and would decrease diversity.

Soil productivitiy and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities mineral exploration). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 10,650 operating plans over the 50 year period. Approximately 70 percent of the operating plans would have compliance checks by 2030. Total disturbance would be 18,205 acres for the fifty year period, while 16,385 acres would be reclaimed. Some 775,621 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 1,992.2 M acres designated for wilderness recommendation.

MINERAL LEASING

--Direct Effects--

The designation of 1,992.2 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production.

See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing of zero acres in roadless areas not designated as wilderness could preserve their wilderness charactistics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 70 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,170 person caused fires, 116,700 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 55,040 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could increase due to no timber harvesting in this alternative. The lack of a sawtimber program would result in an increase of overmature timber stands. The above situation, in conjunction with decreased access to National Forest lands and private in holdings, could result in an increased threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 1,992.2 M acres designation for wilderness recommendation.

ALTERNATIVE G

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Construction of thirteen new campgrounds and reconstruction of existing developed recreation sites would result in 6,175 PAOT. Construction of 18 miles of dispersed recreation trails would enhance the dispersed recreation resource. This alternative would meet the expected demand for developed recreation.

The capacity and service level provided at campgrounds and picnic areas would increase. This alternative would operate 100 percent of the existing sites at full service. Opportunity for dispersed recreation would increase. Overall resource damage from Off Road Vehicle use is expected to decrease over the current situation due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be significant. Of the 3,171.4M acres of visual quality classifications inventoried, acres would move to a lower classifcation due to resource activities. This results from an increase in timber harvesting.

--Indirect Effects--

There would be an increase in awareness by the public of a change in what they perceive as scenic quality where timber is harvested.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a high risk of cultural resource damage, a high necessity to respond to other resource activities, a moderate to high ability to respond to other resource activities, and an emphasis on project related work and programmatic, forestwide inventory.

Minerals would continue to have the greatest impact on cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

Increased grazing improvements and sawtimber harvest would increase potential risk to cultural resources. Increased funding in these areas would increase ability to manage cultural resources in relation to these elements. Cultural resource management would affect grazing improvements and sawtimber harvest through potential delays and additiona costs for any necessary mitigation.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated every two years until potential is reached. Enhancement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest 69.5 million cubic feet of timber over the fifty year planning horizon. Ther would be 25,520 acres regenerated by artificial and natural means over this same period. The annual long term sustained yield capacity of 1.50 million cubic feet would be achieved by the 20th period. Some 62,174 acres of the Toiyabe National Forest would be suitable for timber. This alternative would have 19,180 acres of natural regeneration and 6,340 acres of artifical regeneration. The construction of local roads would remove some of this acreage from the timber base. The designation of 60,080 tentatively suitable acres for wilderness recommendation would remove acreage from the timber base.

There would be a high opportunity to use integrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be declining due to high timber harvesting. This would reduce risk of an epidemic due to overmature stands of timber.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the reforestation program would average 67% more treated acres per annum.

--Indirect Effects--

An increased supply of medium to large high quality sawlogs would be available for the local mills.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 136.9 miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstruction at an average rate of 29.5 miles per year. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stabilized. The overall condition of the arterial and collector road system would improve. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve 194.1 miles of new local road construction for the fifty year period. Reconstruction of local roads would average 3.6 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would increase over the current situation. Maintenance would increase, which could reduce safety problems and resource degradation associated with these roads.

Increased construction of new local roads over the present situation would result in a greater impact on the local wildlife population.

This alternative would have 1,348.0 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 35 to 70 M acres would require approximately 36 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LAND PURCHASE, ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition of adjustment would be the same as described in alternative A (the "no action" alternative). Land exchange would total 30,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would increase 12% over estimated natural levels. Improvement acres for soil and water work would total 545 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 1,348.0 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 9,748,000 RVDs in the first period to 11,301,000 in the fifth period.

--Indirect Effects--

The removal of this acreage from the timber or mineral exploration base would result in decreased timber production and could result in a decline in mineral exploration and possibly declining production.

See LOCATABLE MINERALS, indirect effects for additional information.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 5,108,000 AUM's of domestic livestock grazing and 251,000 AUM's of wild free-roaming horses and burros for a fifty year period. About 95 percent of suitable rangelands are expected to be in satisfactory condition by 2030. Extensive management would occur on 30 percent of the acres, with intensive management of the other 70 percent.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetations within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

Increased use of riparian areas for grazing purpose would occur in this alternative but condition would improve due to improved management. All allotments would be placed under an approved management plan by 1995.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average 5% more treated acres per annum.

--Indirect Effects--

Conflicts between wildlife/livestock use would decrease. Completion of allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 4,216,000 WFUDs in the first period to 4,904,000 WFUDs in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDs in the general forest area would increase from 2,047,500 to 2,625,680, while WFUDs in the wilderness areas would increase from 2,168,500 to 2,278,320. Some 34,480 acres of wildlife habitat improvement would be done during the fifty year period. This decrease of improvement acres over the current programs could have a negetive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would decrease by 30% in the first period to 50% in the fifth period. This decrease would be caused by the increased harvesting of mature/old growth conifer type.

Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas. Elk populations in Central Nevada are expected to level off within 20 years.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and a decrease in the quality of hunting and fishing.

There would be a decrease in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would decrease over the current situation in this alternative. As increased timber harvesting occurs, the existing stands of old growth would be converted to younger stands of varing ages. The loss of these older stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring younger stands. The average age for the working groups are: 92 years for Mixed Conifer, 98 years for Jeffrey Pine and 124 years for Lodgepole Pine.

This would decrease habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildlife would occur on 2,334 acres annually and would decrease diversity.

Soil productivity and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily livestock grazing). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 13,250 operating plans over the 50 year period. Approximately 85 percent of the operating plans would be brought in compliance by 2030. Total disturbance would be 23,170 acres for the fifty year period, while 22,012 acres would be reclaimed. Some 421,557 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 1,348.0 acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining. Within this alternative, 35 to 70 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 1,348.0 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing in 754.8 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness charactistics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 70 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,090 person caused fires, 116,700 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 61,630 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could decrease due to increased timber harvesting in this alternative. This high timber program would result in a decline of overmature timber stands. The above situation, in conjunction with increased access to National Forest lands and private in holdings, could reduce threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 1,348.0 M acres designated for wilderness recommendation.

ALTERNATIVE H

RECREATION USE

--Direct Effects--

Existing sites would be managed under present standards and guidelines. The existing trail system and designated sites would be retained. Construction of two new developed recreation sites and reconstruction of the existing developed sites would handle an additional 440 PAOT. New construction of trail heads would enhance the dispersed recreation resource. Construction of 24.4 miles of dispersed recreation trails would improve the dispersed recreation resource. This alternative would not meet expected developed recreation demand.

The capacity and service level provided at campgrounds and picnic areas would decrease. This alternative would operate 70 percent of the existing sites at full service and 30 percent at reduced service. Over the fifty year period, the existing sites would be increasingly over used. This over usage could result in resource damage and facility deterioration. In conjunction with the damage, the overall quality of experience could decline. Overall resource damage from Off Road Vehicle use is expected to decrease over the current situation due to the additional acres closed (mainly from wilderness designation).

The effects of construction/reconstruction are the same as alternative A.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

VISUAL QUALITY

--Direct Effects--

The visual impact of this alternative would be moderate. Of the 3,171.4 M acres of visual quality classifications inventoried, 96,000 acres would move to a lower classifcation due to resource activities. This results from an decrease in timber harvesting.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

CULTURAL RESOURCES

--Direct Effects--

This alternative carries a low risk of cultural resource damage, a low necessity to respond to other resource activities, a moderate ability to respond to other resource activities, and an emphasis on project related work.

Minerals would continue to have the greatest impact on cultural resources. Cultural resource management would affect mineral operations because of potential delays and increased costs for any necessary mitigation.

The cultural resource program would increase from the project level to include forestwide inventory and evaluation. One property would be nominated every two years until the potential is reached. Enahncement of properties would increase beyond project mitigation and protection.

TIMBER AND VEGETATION

--Direct Effects--

Toiyabe National Forest would harvest no timber over the fifty year planning horizon. There are no suitable timber acres in this alternative.

There would be little or no opportunity to use intergrated pest management through silvicultural practices and salvage sale. The average age of the existing stands would be increasing due to no timber harvesting. This would result in a high chance of an epidemic due to overmature stands of timber.

--Indirect Effects--

Lack of timber products for local mills could affect the economy of the local communities.

ARTERIAL AND COLLECTOR CONSTRUCTION/RECONSTRUCTION

--Direct Effects--

This alternative would involve no miles of new arterial or collector road construction for the fifty year period. Existing arterial and collector roads would be reconstructed at an average rate of 26.5 miles per annum. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the arterial and collector road system would deteriorate. Maintenance would decrease, which could increase safety problems and resource degradation associated with these roads. This alternative would not adversely affect local or regional political concerns or energy developments. Reconstruction, maintenance, or both would enhance public access to National Forest Systems lands.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LOCAL ROAD CONSTRUCTION/RECONSTRUCTONn

--Direct Effects--

This alternative would involve no miles of new local road construction for the fifty year period. No reconstruction of local roads would occur in this alternative. A temporary increase in localized soil movement could be expected while construction/reconstruction is in progress and until exposed soil is stablilized. The overall condition of the local road system would decrease over the current situation. Maintenance would decrease, which could increase safety problems and resource degradation associated with these roads. No construction of new local roads over the present situation would result in less impact on the local wildlife population.

This alternative would have 1,464.2 M acres designated for wilderness recommendation. Based on historical data, 10 to 20 percent of lands that have high mineral potential would be developed for mining. About 30 to 60 M acres would require approximately 42 miles of local roads. These roads would normally be closed and the area rehabilitated after the road is no longer needed for mining. Exceptions are those roads that would enhance other resource and public use and are described in the Forest Transportation plan.

--Indirect Effects--

There would be no discernible indirect physical or biological effects.

LAND PURCHASE,ACQUISITION AND ADJUSTMENT

--Direct Effects--

The direct effects of this alternative on land purchase, aquisition and adjustment would be the same as described in alternative A (the "no action alternative). Land exchange would total 40,000 acres for the fifty year period.

--Indirect Effects--

The indirect effects of this alternative on land ownership would be the same as described in alternative A (the "no action" alternative).

SOIL

--Direct Effects--

Soil erosion resulting primarily from timber management activities in the Sierra would not increase over estimated natural levels. Improvement acres for soil and water work would total 1,470 acres for the fifty year period. This work would improve overall watershed conditions.

The effects on water quantity and quality would be the same as described for alternative B.

WILDERNESS USE

--Direct Effects--

Wilderness use would increase as a result of the 1,464.2 M acres of roadless areas being designated for recommendation as wilderness. Use would increase from 7,634,000 RVDs in the first period to 9,410,000 in the fifth period.

--Indirect Effects--

The removal of this acreage from the timber or mineral exploration base would result in decreased timber production and could result in a decline in mineral exploration and possibly declining production. See LOCATABLE MINERALS, indirect effects for additional information.

RANGE

--Direct Effects--

Toiyabe National Forest would have available 4,640,00 AUM's of domestic livestock grazing and 288,000 AUM's of wild free-roaming horses and burros for the fifty year period. About 90 percent of suitable range lands are expected to be in satisfactory condition by 2030. Extensive management would occur on 55 percent of the acres, with intensive management of the other 55 percent.

Decreased use of riparian areas for grazing purpose would occur in this alternative. All allotments would be placed under an approved management plan by 1995. There would be increased noxious farm weed control.

Vegetative management practices would remain the same as alternative A (the "no action" alternative) except that the range improvement program would average the same treated acres per annum.

Of the 585,700 acres of suitable range lands, 90 percent could be in satisfactory condition by 2030. The trend of these acres in satisfactory condition would be up.

This alternative would have short-term effects (during the grazing season) on soil productivity and vegetation within riparian areas. The management practices under this alternative would reduce the resource effects, so that in the long term the condition of the riparian areas would be maintained or enhanced.

This alternative would meet minimum management requirements for protection of long-term soil productivity.

--Indirect Effects--

Conflicts between wildlife/livestock use would decrease. Completion of allotment management plans would better facilitate use of the existing range resource.

WILDLIFE

--Direct Effects--

Total wildlife and fish user-days would increase from 5,860,000 WFUDs in the first period to 7,888,000 WFUDs in the fifth period. This increase would be followed by a leveling off for the remaining 150 years. WFUDs in the general forest area would increase from 4,458,100 to 6,282,400, while WFUDs in the wilderness areas would increase from 1,401,900 to 1,605,600. Some 158,020 acres of wildlife habitat improvement would be done during the fifty year period. This increase of improvement acres over the current programs could have a positive impact of altering the plant succession of habitat conditions favorable for the target species.

There are approximately 15,000 acres of old growth habitat on the Forest. Animals requiring den/old growth habitat would increase by 5% in the first period to 35% in the fifth period. This increase would be caused by the decreased harvesting of mature/old growth conifer type. The Elk herd in central Nevada would level off in 20 years as maximum habitat capacity is reached. Viable populations of all native vertebrate and plant species would be maintained. Some populations would be at threshold level and would not occur in some areas.

--Indirect Effects--

There would be an overall increase in opportunities for hunting and fishing and increased quality of hunting and fishing.

There would be an increase in non-consumptive WFUDs of species requiring den and old growth habitat.

The indirect effects of site practices on wildlife species would be the same as those described for alternative A.

DIVERSITY

--Direct Effects--

Overall diversity would increase slightly over the current situation in this alternative until the existing younger stands grow older. As the forest moves toward all old/mature growth, overall diversity will decrease over the current situation. The loss of younger stands over the current situation would cause a skewing of all age classes toward habitats that would favor species requiring older stands. The average age for the working groups are: 280 years for Mixed Conifer, 249 for Jeffrey Pine and 281 years for Lodgepole.

This would increase habitat for goshawk, spotted owl, pine marten, Williamson's sapsucker, and the hairy woodpecker. Wildfire would occur on 2,334 acres annually and would decrease diversity.

Soil productivity and vegetative complexes in riparian areas would be maintained as a result of activities carried out in this alternative. Habitat capability for riparian dependent MIS would, therefore, be maintained. These dependent species would be yellow warbler, macroinvertebrates and sage grouse.

The variety of vegetation types suitable for mule deer and bighorn sheep exists over major portions of the Forest. These habitats would be maintained or enhanced in this alternative.

--Indirect Effects--

In essence, this alternative directly affects the diversity of plant habitat through management activities (primarily livestock). Animal numbers and species would be indirectly affected by these activities.

LOCATABLE MINERALS

--Direct Effects--

Based on the acreage available and the management emphasis, it is projected that opportunities for mineral activities could result in 10,650 operating plans over the 50 year period. Approximately 70 percent of the operating plans would have compliance checks by 2030. Total disturbance would be 19,860 acres for the fifty year period, while 17,874 acres would be reclaimed. Some 469,636 acres of high mineral potential land would be designated for wilderness recommendation.

--Indirect Effects--

Mineral development within designated wilderness would be subject to valid existing rights. This alternative would have 1,464.2 M acres designated for wilderness recommendation. Not all of this acreage would have mineral exploration or production in the next 15 years. Based on historical data, approximately 10 to 20 percent of lands that have high mineral potential would be developed through mining. Within this alternative, 30 to 60 M acres not designated as wilderness would be roaded and would no longer have wilderness characteristics. These roaded acres are areas of high mineral potential and probably would not be considered for wilderness recommendation the next planning period.

MINERAL LEASING

--Direct Effects--

The designation of 1,464.2 M acres for wilderness recommendation could remove this acreage from mineral leasing and/or production. See Table IV-1 for potential and access constraints.

Anticipated levels of surface disturbing activities would be minor. Their effects would be minimal. Effects would be mitigated through site-specific stipulations.

--Indirect Effects--

Leasing in 638.6 M acres of roadless areas not designated as wilderness could cause the destruction of their wilderness charactistics on probably 10-20% of the total roadless acres.

FIRE MANAGEMENT

--Direct Effects--

The planning level of attack forces is 70 percent of the most cost efficient level of attack forces as determined by the National Fire Analysis. Implementing this level would result in the following fifty year totals: 1,170 person caused fires, 116,700 acres burned by wildfires and $60 million cost plus Net Value Change. Also there would be 41,960 acres of prescribed fire for fuel reduction.

The hazard to private landowners along the Carson and Sierra Front could increase due to no timber harvesting in this alternative. The lack of a sawtimber program would result in an increase of overmature timber stands. The above situation, in conjunction with decreased access to National Forest lands and private in holdings, could result in an increased threat from a major fire.

--Indirect Effects--

In addition to the acres of prescribed burning shown under other resources prescribed burning would be used to maintain natural vegetative diversity on 1,64.2 M acres designated for wilderness recommendation.

SOCIAL AND ECONOMIC EFFECTS

ALTERNATIVE A

EMPLOYMENT

--Direct Effects--

Approximately 1,443 jobs will be dependent upon Forest Service outputs under the no-action alternative in the year 1990. This will increase to 1,459 in the year 2000. (See Appendix B for a more detailed explanation of how these estimates were calculated.)

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

The income earned by those people affected by Forest Service actions is approximately $34.8228 million (in 1982 dollars) in 1990 and $34.6484 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative may have a direct effect on the Native American population within the zone of influence, many of whom are dependent upon Forest Service lands for their grazing permits, fuelwood, and pinenut harvests.

--Indirect Effects--

Many members of the other minority groups might be affected if there were any changes in recreational outputs, since this would affect many people employed in the trade and services sectors. However, this alternative will not create any significant changes in these sectors.

LIFESTYLES

--Direct Effects--

It is estimated that this alternative will not create any changes in the lifestyles of those people affected by the Forest Service actions.

ATTITUDE, BELIEFS, AND VALUES

--Direct Effects--

It is estimated that this alternative will not create any changes in the attitudes, beliefs, and values of those people affected by Forest Service actions.

SOCIAL ORGANIZATION

--Direct Effects--

It is estimated that this alternative will not create any changes in the social organization of any community affected by Forest Service actions.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not create any changes in the population or land uses within the zone of influence.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.45 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.2 million annually to the federal treasury.

ALTERNATIVE B

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net increase of 353 jobs in 1990 from the no-action alternative, and add 523 jobs in 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income increase of $9.0230 million (in 1982 dollars) over the no-action alternative in the year 1990 and $13.2228 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some positive effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will increase from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade are expected to increase, which might provide additional employment opportunities for various members of minority groups.

LIFESTYLES

--Direct Effects--

This alternative will increase developed recreation, livestock grazing, sawtimber, minerals, and fire protection. Those individuals who rely on those outputs will be positively affected by this alternative. However, those individuals who wish to maintain the scenic and natural setting of the Forest may have their lifstyles adversely affected.

ATTITUDES, BELIEFS, AND VALUES

--Direct Effects--

While some individual lifestyles may be affected, their sense of freedom and self-sufficiency should not be affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

This alternative has the highest increase in potential jobs of any of the alternatives. IMPLAN estimates that for every increase or decrease in the number of jobs, the population will increase or decrease approximately 2.175 people. This would mean that for this alternative, in 1990, the population would increase approximately 768 people. This assumption, however, is essentially invalid as long as communitites have unemployment. So it can be assumed that job opportunities created by mining activities could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.57 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.6 million annually to the federal treasury.

ALTERNATIVE C

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net decrease of 334 jobs in 1990 from the no-action alternative, but a net increase of 182 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income decrease of $8.4006 million (in 1982 dollars) below the no-action alternative in the year 1990, but a net increase of $3.6266 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative may have some negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest; since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to remain around the same level as in the no-action alternative. So there should be no real impact on members of the various minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to emphasize wildlife management and to increase the wilderness acreage by including the high quality roadless areas. Those individuals whose lifestyles depend upon living near an area with high scenic values will be positively affected. However, those who depend upon using the Forest for the production of various goods and services, such as ranchers and loggers, will be adversely affected.

ATTITUDES BELIEFS, AND VALUES

--Direct Effects--

For those individuals whose lifestyles will be adversely affected, so will their sense of freedom and self-sufficiency be affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For those alternatives that decrease job opportunities, those people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating any significant amount of in-migration. So significant increases in mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $3.9 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.1 million annually to the federal treasury.

ALTERNATIVE D

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net increase of 252 jobs in 1990 from the no-action alternative, and a net increase of 430 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income increase of $6.2736 million (in 1982 dollars) above the no-action alternative in the year 1990, and a net increase of approximately $10.6898 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some negative effect on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to increase, which might provide additional employment opportunities for various members of the minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative generally is to meet the Toiyabe's share of local, regional, and national demands for the various outputs that are produced on a national forest. There should be no significant impact on the lifestyles of those people who are affected by Forest Service actions.

ATTITUDES BELIEFS, AND VALUES

--Direct Effects--

This alternative should not create any changes in the attitudes, beliefs, and values of those people affected by Forest Service actions.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For those alternatives that decrease job opportunities, those people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating any significant in-migration. So any significant increase in the mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.57 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.5 million annually to the federal treasury.

ALTERNATIVE E

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net decrease of 463 jobs in 1990 from the no-action alternative, but a net decrease of 81 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

This alternative will result in a net income decrease of approximately $11.5993 million (in 1982 dollars) below the no-action alternative in the year 1990, but a net decrease of approximately $2.4097 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to decrease, which might hinder employment opportunities for some members of the various minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to maintain fire protection and grazing capacity, while managing the remaining resources at a reduced level. Many individuals will have their lifestyles severely affected. This is especially true of those people who rely exclusively upon Forest outputs, such as loggers and ranchers. Many people who rely upon the recreational outputs from the Forest will also be affected, and various communities that depend on tourism could be impacted.

ATTITUDES BELIEFS, AND VALUES

--Direct Effects--

For those individuals who may lose their jobs because of the reduced level of production of various outputs, their sense of freedom and self-sufficiency will be severely affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a substantial drop in the availability of recreational opportunities is centered around a particular community, such as Bridgeport, then that would have a significant impact on that community's stability. Also, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For alternatives that decrease job opportunities, those people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating any significant in-migration. So any significant increase in mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $3.7 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.1 million annually to the federal treasury.

best copy available

ALTERNATIVE P

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net increase of 244 jobs in 1990 from the no-action alternative, and a net increase of 377 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income increase of $5.6032 million (in 1982 dollars) above the no-action alternative in the year 1990, but a net increase of $9.0021 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to increase, which might provide additional employment opportunities for minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to emphasize recreation opportunities, mineral production, and wildlife management, while maintaining other resources at or below current levels. Those individuals who rely upon the Forest for it's scenic and amenity values will generally have their lifestyles positively affected. Other individuals who depend upon livestock and timber production from the Forest may lose their jobs and have their lifestyles severely impacted.

ATTITUDES, BELIEFS, AND VALUES

--Direct Effects--

For those individuals who may lose their jobs because of the reduced level of production of various outputs, their sense of freedom and self-sufficiency will be severely affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For alternatives that decrease job opportunities, people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating significant in-migration. So significant increases in mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.47 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.4 million annually to the federal treasury.

ALTERNATIVE F

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net increase of 16 jobs in 1990 from the no-action alternative, and a net increase of 120 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income decrease of $0.5821 million (in 1982 dollars) below the no-action alternative in the year 1990, but a net increase of $1.8794 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to increase, which might provide additional employment opportunities for minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to emphasize primitive recreation and wilderness values. Those individuals who rely upon the Forest for it's scenic and amenity values will have their lifestyles positively affected, while individuals who depend upon livestock and timber production from the Forest may lose their jobs and have their lifestyles severely impacted.

ATTITUDES, BELIEFS, AND VALUES

--Direct Effects--

For those individuals who may lose their jobs because of the reduced level of production of various outputs, their sense of freedom and self-sufficiency will be severely effected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For alternatives that decrease job opportunities, people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating significant in-migration. So significant increases in mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.36 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.0 million annually to the federal treasury.

ALTERNATIVE G

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net decrease of 192 jobs in 1990 from the no-action alternative, but a net increase of 223 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income decrease of $4.1270 million (in 1982 dollars) below the no-action alternative in the year 1990, but a net increase of $6.3287 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to decrease at first, then rebound and increase in future years. This means that future employment opportunities may be somewhat hampered at first, but may eventually increase for minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to emphasize the management of livestock and timber resources over time. People who are dependent upon the production of these resources will be positively affected. Other individuals who depend upon the recreational resources of the Forest may be negatively impacted.

ATTITUDES, BELIEFS, AND VALUES

--Direct Effects--

For those individuals whose lifestyles will be adversely affected, so will their sense of freedom and self-sufficiency be affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For alternatives that decrease job opportunities, people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating significant in-migration. So significant increases in mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $0.56 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.6 million annually to the federal treasury.

ALTERNATIVE H

EMPLOYMENT

--Direct Effects--

It is estimated that this alternative will result in a net decrease of 292 jobs in 1990 from the no-action alternative, but a net increase of 369 jobs in the year 2000.

--Indirect Effects--

In a sense, this employment estimate is both direct and indirect. The IMPLAN model used to calculate changes in employment takes into account direct, indirect, and induced effects to arrive at the total estimate of employment.

INCOME

--Direct Effects--

It is estimated that this alternative will result in a net income decrease of $7.7470 million (in 1982 dollars) below the no-action alternative in the year 1990, but a net increase of $7.3503 million in the year 2000.

--Indirect Effects--

In a sense, this income estimate is both direct and indirect. The IMPLAN model used to calculate changes in income takes into account direct, indirect, and induced effects to arrive at the total estimate of income.

MINORITIES

--Direct Effects--

This alternative will have some negative effects on those Native Americans who depend upon pinenut harvests and fuelwood from the Forest, since these outputs will decrease from the levels in the no-action alternative.

--Indirect Effects--

Employment in sectors such as services and trade is expected to decrease at first, then rebound and increase in future years. This means that future employment opportunities may be somewhat hampered at first, but may eventually increase for minority groups.

LIFESTYLES

--Direct Effects--

The objective of this alternative is to maximize the net public benefits consistent with resource intergration and management requirements, with production of certain resources such as timber and range reduced, while management of wildlife and recreational resources will be increased. This means that those people who rely upon the production of timber and range resources may have their lifestyles severely impacted. Those individuals who rely on the scenic and amenity type of outputs produced from the Forest will be positively affected.

ATTITUDES, BELIEFS, AND VALUES

--Direct Effects--

For those individuals whose lifestyles will be adversely affected, so will their sense of freedom and self-sufficiency be affected.

SOCIAL ORGANIZATION

--Direct Effects--

Generally, this variable will not be affected. However, if a significant increase in mining activities should occur, then various communities such as Austin, Round Mountain, Gabbs, Tonopah, and Hawthorne could be affected.

POPULATION AND LAND USES

--Direct Effects--

It is estimated that this alternative will not have any significant effect on the population or land uses within the zone of influence. For alternatives that decrease job opportunities, people losing jobs will probably look for jobs elsewhere within the zone of influence. Some, of course, will leave the area in search of new employment opportunities, but not a significant number. The same is true for any alternative that will increase job opportunities. New opportunities will probably be taken by unemployed people living within the zone of influence, rather than creating significant in-migration. So significant increases in the mining activities within this region could change this situation.

RETURNS TO THE COUNTIES (25%)

--Direct Effects--

It is estimated that this alternative will return $3.6 million annually to the 15 counties associated with the Toiyabe National Forest.

RETURN TO TREASURY

--Direct Effects--

It is estimated that this alternative will return $1.0 million annually to the federal treasury.

ECONOMIC EFFECTS

The planning process specified in the NFMA regulations requires consideration of economic efficiency as a basic principle of planning (36 CFR 219.1(b) (13)), in the formulation of alternatives (36 CFR 219.59 (f) (1) (v)), in estimating the effects of alternatives (36 CFR 219.5 (g) (9)), and in evaluating the alternatives (36 CFR 219.5 (b)).

In addition to the NFMA requirements, the Congressionally revised Resource Planning Act Statement of Policy states that ". . . forest and rangeland in all ownerships, should be managed to maximize their net social and economic contributions to the National well being, in an environmentally sound manner. . . " Further, "The Secretary of Agriculture shall continue his efforts to evaluate the cost-effectiveness of the renewable resource program."

The main criterion used in the economic efficiency analysis is present net value. It is defined as discounted benefits less discounted costs, including only those outputs that can be assigned monetary values. In the linear programming model, FORPLAN, each alternative was originally run to maximize present net value over five decades. This ensured that the original tentative management prescriptions for each alternative were cost-efficient. Prescriptions are composed of a cost-efficient set of practices needed to achieve the desired ends. The optimum alternative is the one that maximizes net public benefits (NPB), defined as the overall value to the nation of all benefits less all associated inputs and costs, regardless of whether or not they can be assigned monetary values.

Examples of such benefits include public safety, visual quality, concern for future generations, and diversity of resources. Much of the difference in PNV of the various alternatives is an indication of how a particular alternative provides qualitative and nonquantifiable benefits. Differences from maximum PNV may be considered the opportunity cost of having or achieving greater net public benefits.

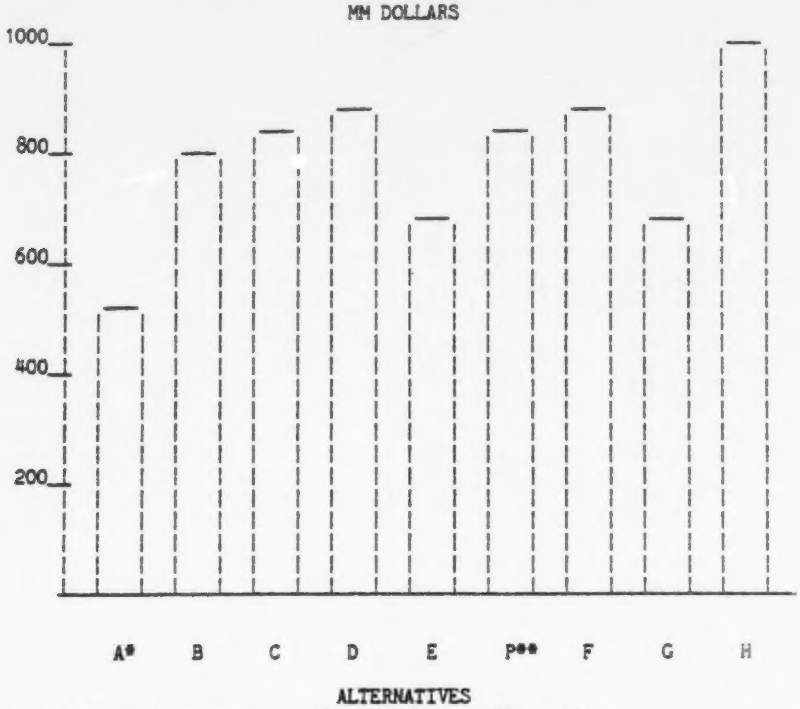
The economic parameters shown in the tables in this section reflect only the monetary portion of the analysis used to evaluate alternatives. Decisionmakers consider public benefits in addition to economic efficiency in the final analysis.

Table IV-3 --Discounted benefits and costs, 4% discount rate, MM$, 50 year period (1982 Dollars)

	Benchmarks Max PNV	Alternatives								
	All	A	B	C	D	E	P	F	G	H
Present Net Value, PNV	990.0	508.2	810.8	831.0	869.6	651.4	840.8	865.8	697.3	990.0
Present Value of Benefits, PVB	1142.1	638.0	1015.1	977.8	1052.8	760.4	1005.7	975.7	878.5	1142.1
Present Value of Costs, PVC	152.0	129.8	204.2	146.7	183.1	98.4	164.8	104.5	176.3	152.0
PVB, by Output:										
Timber	0	9.9	18.4	3.4	14.4	0	7.4	0	14.6	0
Other Timber 1/	2.0	3.0	2.8	2.0	2.7	2.5	2.6	1.8	2.7	2.0
Recreation	269.2	216.6	313.8	240.7	299.1	205.2	287.9	218.0	220.8	269.2
Wildlife	402.2	202.6	320.8	359.3	355.0	283.6	346.9	346.2	267.5	402.2
Range	35.5	37.4	37.7	35.3	37.4	37.7	36.7	35.5	38.5	35.5
Wilderness	198.5	102.5	23.3	234.0	148.8	205.1	149.9	218.0	245.1	198.5
PVC, by Output:										
Total Budget	152.0	129.8	204.2	146.7	183.1	98.9	164.8	104.5	176.3	152.0
Protection-cost	19.0	17.4	28.6	20.9	19.6	21.4	28.6	20.2	20.2	19.0
General-Administration	19.8	19.2	19.8	22.6	19.8	13.3	22.6	13.3	19.8	19.8
Total Road Construction	26.6	12.1	32.9	13.0	28.6	2.0	16.3	2.0	29.6	16.7
Appropriated Funds Road	26.0	9.4	27.5	12.1	24.6	2.0	14.4	2.0	25.6	16.7
Purchaser Road	0	2.7	5.4	.9	4.0	0	1.9	0	4.0	0
Recreation Construction	.36	0	7.6	.27	5.3	.17	6.5	.36	7.2	.36
Other-Investment	1.1	1.7	7.3	4.3	7.3	1.1	4.3	1.1	7.3	1.1
Operation & Maintenance	107.6	74.2	97.2	78.4	101.5	58.6	86.4	65.4	93.4	107.6

1/ Includes Christmas trees, pinyon nuts, posts & poles, and fuelwood.

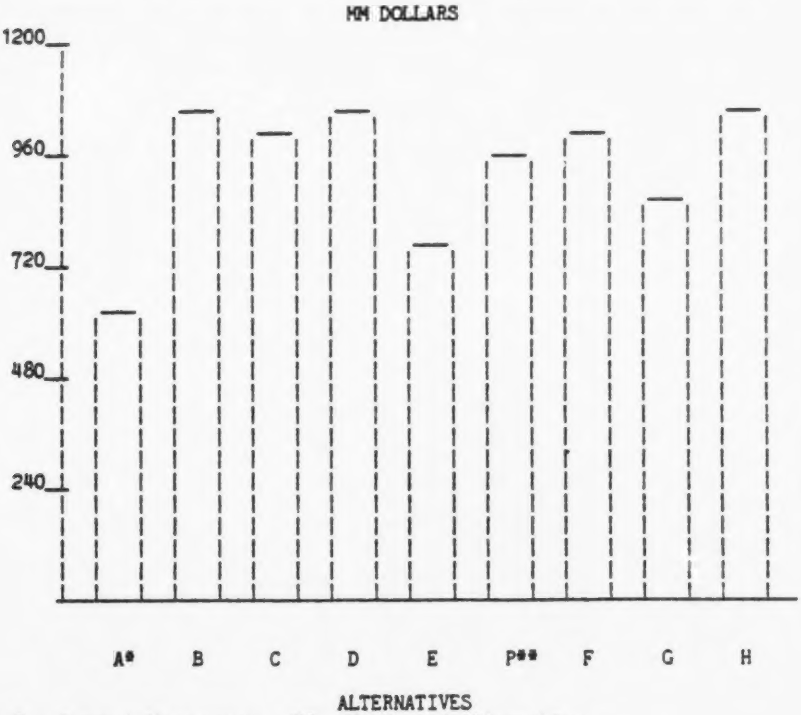
FIGURE IV-1 COMPARISON OF PRESENT NET VALUE BY ALTERNATIVES



* - Current Management ** - Preferred Alternative

Discounted at 4% for fifty years

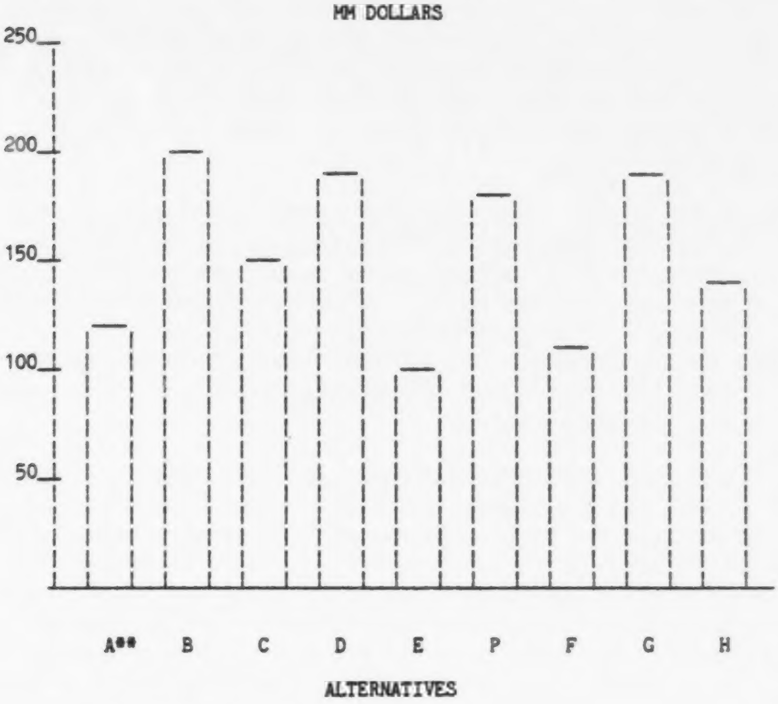
FIGURE IV-2 COMPARISON OF PRESENT VALUE BENEFITS BY ALTERNATIVES



* - Current Management ** - Preferred Alternative

Discounted at 4% for fifty years

FIGURE IV-3 COMPARISON OF PRESENT VALUE COSTS BY ALTERNATIVES



Discounted at 4% for fifty years

SHORT TERM USES OF MAN'S ENVIRONMENT & THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

The relation between short-term uses of man's environment and the maintenance and enhancement of long-term productivity is complex. Short-term uses such as livestock grazing, timber harvesting, and recreation are ongoing.

Forest management is both a short-term and a long-term venture. Managers of National Forests think in terms of what many persons view as the distant future. Rotations on this Forest for producing timber and the associated outputs of water, wildlife, and scenic quality, range from 120 to 300 years for the various working groups.

The planning period for plans developed under NFMA is 50 years. The Multiple Use-Sustained Yield Act of 1960 defined sustained yield as the "achievement and maintenance in perpetuity of a high level annual or periodic output of the various renewable resources of the National Forests without impairment of the productivity of the land." "Long-term" refers here to longer than the 50-year period represented by the Forest Plan. "Productivity" refers to the capability of the land to provide outputs of resources. Soil and water are the primary factors of productivity.

The interdisciplinary team developed minimum standards and guidelines that apply Forestwide in all alternatives. As part of the Forest planning process, the specific direction and mitigation measures included in these standards and guidelines assure that long-term productivity will not be impaired by applications of short-term management practices. Chapter IV of the Forest Plan lists the Forestwide standards and guidelines. The management prescriptions, management practices, and effects of implementing the plan will be monitored to provide data for ensuring that these standards and guidelines are met.

Details of the monitoring program are included in Chapter V of the Forest Plan. Monitoring requirements apply to all alternatives. They are based on availability of funding to complete the monitoring activities. The purpose of monitoring is to ensure that long-term productivity of the Forest will be maintained or improved by the application of management prescriptions and to cause change in the Forest Plan when productivity is not maintained.

The Market Opportunities Alternative (Alternative B) has the highest level of short-term uses, as reflected by the number of acres of vegetative treatment for wildlife, range, and timber management. It results in higher levels of short-term adverse consequences, such as degraded air quality, increased visual impacts, fire hazard, soil loss, and degraded air quality. The wilderness and primitive recreation alternative (F) has the lowest level of short-term uses and therefore the smallest number of short-term adverse consequences.The table on the following page lists the long-term effects by resource for each of the alternatives:

TABLE IV-4 EFFECT OF SHORT-TERM USE ON LONG-TERM PRODUCTIVITY

Resource	**Effect of Short-term use on Long-term Productivity**
Timber	Alternatives E, F, and H essentially have no long-term sustained yield of timber. Under these alternatives, the timber resource would be essentially unutilized. The long-term sustained yield for the nine alternatives would be: Alternative A 1.06 million cubic feet per year Alternative B 2.10 million cubic feet per year Alternative C 1.41 million cubic feet per year Alternative D 1.83 million cubic feet per year Alternative E 0.00 million cubic feet per year Alternative P 1.54 million cubic feet per year Alternative F 0.00 million cubic feet per year Alternative G 1.50 million cubic feet per year Alternative H 0.00 million cubic feet per year
Wildlife	All alternatives contain standards and guidelines (including the minimum management requirements) to maintain viable populations of all native vertebrate and plant species.
Threatened and Endangered Species	All alternatives contain standards and guidelines to protect threatened, endangered and sensitive species.
Soil and water	All the alternatives produce a level of water deemed necessary to meet all anticipated short-term needs. Short term use of surface and groundwater would not affect long-term yields. All alternatives except alternative A contain standards and guidelines (including the minimum management requirements) to maintain soil productivity and water quality. Soil loss will increase temporarily due to soil disturbing management (timber harvesting, mineral extraction, recreation construction projects, etc.). However this loss is within limits necessary to maintain site productivity.
Recreation	All alternatives would supply sufficient dispersed recreation opportunities to meet long-term demands. Alternatives B, D, P, and G have been designed to meet the long-term demands for developed recreation use. Developed recreation sites are long-term commitments. Maintenance work is short-term, is repeated periodically, and increases the long-term productivity of a site.

Resource	Effect of Short-term use on Long-term Productivity
	Any new construction or reconstruction will add to the long-term effect. Adverse effects of developed recreation are expected to be long-term.
	Recreation use of dispersed areas may cause long term loss of soil and vegetation. However, construction of facilities can mitigate unacceptable impacts resulting from dispersed recreational use on undeveloped sites.
	Construction for dispersed recreation is a long-term commitment for the occupied area. Adverse effects of these facilities will continue as long as human use continues. Human visits themselves are short-term, but cumulative effects on areas that receive concentrated use and on access routes may remain for the long term.
	Most recreation special uses are long-term commitments of land for a specified use. The adverse effects continue as long as the special use remains. The major adverse effects of construction are short-term and can be mitigated or prevented.
	Off road vehicle travel is a short-term use. However, its cumulative effects may remain for many years. Proper management of ORV use can eliminate all but minor adverse effects on long-term productivity. Alternatives such as the Current Program and Constrained Budget do not provide a strong management program and are most likely to allow long-term adverse effects on the land. The Market/Nonmarket Mix, and Preservation and 100% wilderness alternatives call for stronger management programs to protect the land.
	Changes in visual quality caused by resource management activities are usually long-term effects if they include permanent structures, roads, major soil movement, or major changes in vegetation. Temporary installations or minor activities cause only short-term changes in visual quality.
	Dedication of a site to cultural resource purposes is a long-term commitment. Destruction of a cultural resource without prior investigation permanently destroys its historical value.
	Designation of Research Natural Areas is a long-term commitment, but does not reduce productivity of the land.
Riparian Areas	All of the alternatives contain standards and guidelines which mitigate management practices in riparian areas. The long-term productivity of these areas should not be affected by any alternative.

Resource	Effect of Short-term use on Long-term Productivity
Range	All alternatives contain standards and guidelines that mitigate resource conflicts with range management practices. In alternatives A, C, E, F, and H productivity could be reduced on some heavily used sites. All existing and future range improvement projects will increase short term production and help insure long-term productivity of the range.
Fuel Management	Forest and range fires are short-term events. In the natural environment, they occur on a cyclic basis and do not affect long-term productivity of the land. Both fire and the control of fire can affect short-term productivity by altering plant succession, fuel accumulations, nutrient cycles and energy flow, and productivity, diversity and stability of ecosystems.
Minerals and Mineral Leasing	Impacts of mineral and energy development are usually short-term because adequate technology exists to return disturbed sites to their former productivity. Mineral extraction is a short-term activity. Once removed, however, the minerals can not be replaced. Land ownership and leasing: Leases are issued for 10 years or a short-term, but mineral claims are long-term commitments and can result in a land patent and transfer of land to private ownership. Vegetation resource: Most vegetational cover can be rehabilitated in a short time, but sensitive species with small localized populations may be lost permanently. Removal of sensitive types of vegetation will have a long-term adverse effect, especially in high alpine zones. Soil resource: If vegetation is removed from a high precipitation area, serious soil erosion may result. Exposure of highly sensitive soils can result in erosion or mass soil movement. This would be a long-term effect because it would take many years to replace the soil. Hydrology and water quality: A minor increase in runoff is expected under any alternative. This runoff may add sediment to the streams, a short-term effect. There is a slight chance of an oil or chemical spill, which could have a long term effect. Both effects can be held to a minimum if proper procedures are followed. Cultural-archaeological and historical resources: These resources are not expected to be affected unless an unintentional disturbance occurs. If unintentionally disturbed, damage would be a long-term effect.

Resource	Effect of Short-term use on Long-term Productivity
	Wilderness impacts: Where development is allowed, wilderness values will be lost until such time as natural conditions can be restored. This will be a long-term or permanent effect.
	Wildlife and fish habitat: Most impacts on wildlife and fish are short-term. Site rehabilitation can usually restore the long-term productivity of these habitats. If cumulative impacts, however, create loss of wildlife or fish populations, the impact will be long-term.
	Recreation: Noise, air pollution, and visual intrusion are short-term impacts that return to normal following termination of the activity. Impacts on recreation opportunities are generally short-term unless roads remain open, which changes the type of recreation opportunities available over the long-term.
Wilderness	Wilderness designation is a long-term commitment. Proper management will maintain the wilderness resource. Not designating an area as wilderness may be a long or short short commitment, depending on future management. Once significant site-disturbing activities take place, the possibility of designating that area as wilderness is greatly diminished.

ENERGY REQUIREMENTS

The following table shows energy uses for each of the alternatives.

(Millions of BTU's)

Alternative A	5,896.19	Alternative P	1,452.80
Alternative B	12,116.59	Alternative F	0.00
Alternative C	1,845.43	Alternative G	8,540.70
Alternative D	9,014.13	Alternative H	0.00
Alternative E	0.00		

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible commitment of resources refers to resources that are renewable only after a long period of time (such as soil productivity) or to nonrenewable resources (such as cultural resources). Alternatives were formulated with the understanding that maintenance of future options was an important consideration. Measures to protect resources that could be irreversibly affected by other resource uses were incorporated into the Forest-wide standards and guidelines. Eight of the alternatives provide for the maintenance of soil productivity and the protection of cultural resources. Roads, primary skid trails, log landings and borrow pits are a necessary but irreversible commitment of resources to Forest management.

Irretrievable commitment is resource production or use of a renewable resource that is lost because of assigned decisions. This represents opportunities foregone for the period of time that the resource cannot be used. Timber mortality not salvaged within "wilderness" is an example of an irretrievable commitment of a resource. The difference between the yield of any resource in an alternative and the maximum production level of that resource is also an irretrievable commitment of a resource. This difference in production levels for that time period would be "lost" or not available for use. The purpose of land and resource management planning is to provide a mix of uses now and for the future that balances the needs of both the current population and future generations.

SUMMARY OF PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

National Forest land and resource management planning is designed to provide resources, goods and services within the constraint of maintaining the sustained yield of recreation, water, timber and wildlife without impairing the long-term productivity of the land.

The alternative formulation process considered a wide range of alternatives. A few of these alternatives contain significant adverse effects upon the physical, biological, social and economic portions of the human environment. Many of these effects are a consequence of the management practices, yields, standards and guidelines and policies associated with those alternatives. One purpose of selecting the perferred alternative is that it minimized adverse effects. The following table lists the unavoidable adverse impacts for each alternative.

The table on the following page lists the long-term effects by resource for each of the alternatives:

TABLE IV-5 UNAVOIDABLE ADVERSE EFFECTS

Alternatives		**Unavoidable Adverse Effects**
A,C,D,E,P,F,G,H	(1)	The Forest Service recommends wilderness, but Congress designates wilderness, and only Congress can reverse the designation. Wilderness designation is considered a permanent commitment. Extensive site-disturbing activities on lands not recommended or designated as wilderness effectively remove those lands from future consideration as wilderness.
A,B,C,D,P,G	(2)	Short-term adverse effects on visual quality from timber harvesting, reforestation, local road construction/reconstruction and mineral extraction.
	(3)	Localized lowering of site productivity (soil compaction and displacement) on skid trails, temporary roads and new system roads.
	(4)	Short-term adverse effects on riparian areas from timber harvesting and other management practices involving the use of mechanized equipment.
All Alternatives	(5)	Localized adverse effects from the use of pesticides to control bark beetles and other insect or disease problems in high value areas (such as administrative sites or developed recreation areas).

Alternatives	Unavoidable Adverse Effects
	(6) Short-term adverse effects on soil and water quality from localized soil movement during road construction/reconstruction and mineral extraction until exposed soil was stablized with vegetative cover. Grazing and trampling along trails used to access summer ranges will occur. There would be the loss of some vegetation because of grazing pressures on bedding and salting grounds.
	(7) Short-term adverse effects on air and visual quality from prescribed burning
	(8) Major mineral activity in wilderness could cause the irreversible loss of the wilderness resource. Mineral activity in undesignated roadless areas outside wilderness could destroy the wilderness character of such areas and preclude them from being considered for wilderness in the future.
A	(9) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 56,329 acres 1/ removed from the timber base for wilderness recommendation, the 84.1 M acres of tentatively suitable lands to which a harvest prescription is not assigned and potential loss of mineral production on 209.8 M acres recommended for wilderness. Loss of 60 to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
B	(10) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses. Loss of 60 M to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development, and the 49.6 M acres of tentatively suitable lands to which a harvest prescription is not assigned.

Alternatives	Unavoidable Adverse Effects
C	(11) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 60,080 acres 1/ removed from the timber base for wilderness recommendation, the 66.8 M acres of tentatively suitable lands to which a harvest prescription is not assigned and potential loss of mineral production on 1,113.6 M acres recommended for wilderness. Loss of 40 M to 80 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
D	(12) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 48,710 acres 1/ removed from the timber base for wilderness recommendation, the 53.2 M acres of tentatively suitable lands to which a harvest prescription is not assigned and potential loss of mineral production on 592.7 M acres recommended for wilderness. Loss of 55 M to 110 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
E	(13) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 306.1 M acres recommended for wilderness. Loss of 50 M to 100 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development, and the 132.4 M acres of tentatively suitable lands to which a harvest prescription is not assigned.
P	(14) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 48,710 acres 1/ removed from the timber base for wilderness recommendation, the 61.8 M acres of tentatively suitable lands to which a harvest prescription is not assigned and potential loss of mineral production on 211.5 M acres recommended for wilderness. Loss of 60 M to 120 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development

Alternatives	Unavoidable Adverse Effects
F	(15) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 1,992.2 M acres recommended for wilderness. Loss of 75 M to 150 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development and the 132.4 M acres of tenatively suitable land to which a harvest prescription is not assigned
G	(16) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, timber volume forgone on the 60,080 acres 1/ removed from the timber base for wilderness recommendation, the 70.2 M acres of tentatively suitable land to which a harvest prescription is not assigned and potential loss of mineral production on 1,348.0 M acres recommended for wilderness. Loss of 40 M to 80 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development.
H	(17) Forgone timber volume and potential mineral development on the 135.1 M acres found within the established wildernesses, and potential loss of mineral production on 1,464.2 M acres recommended for wilderness. Loss of 50 M to 90 M roadless area acres not recommended as wilderness designation for further consideration as wilderness due to mining development, and the 132.4 M acres of tentatively suitable to which a harvest prescription is not assigned.

1/ Acres that are within the total recommended wilderness otherwise tentatively suitable for timber.

NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS

Natural resource requirements for implementing the Proposed Action or any of the other alternatives considered in detail require the basic soil and water resources and associated plant and animal communities that comprise the Forest and rangeland ecosystems. Mitigation measures to insure resource conservation are included in the Forest and Management Area Direction of the Forest Plan.

Depletable resource requirement include the removal of nonrenewable resources such as minerals or the depletion of a basic resource such as soils. In the case of the mineral resources, once the mineral has been extracted it is gone. Conservation of these resources might be defined as development, and removal of these resources is considered and may be found in the Forest Plan. Soil depletion through natural or man-made disturbance is also considered and rehabilitation/conservation activities associated with the potential depletion of this resource is planned for in each alternative.

In addition, the extinction of a plant or animal species may also be thought of as depletion of a resource. Protection and improvement of threatened and endangered species habitat has been considered in all alternatives and management direction included in the Proposed Forest Plan.

URBAN QUALITY, HISTORIC, AND CULTURAL RESOURCES

The Forest Plan requires an archaeological review prior to any site-disturbing activities. It also provides for a forestwide inventory of areas identified as having high and medium potential for archaeological sites. Valuable sites will be completely investigated prior to disturbance and possibly removed from resource production.

If significant sites are located that meet criteria, they will be nominated to the National Register of Historic Places.

Implementing the Plan normally will not result in the transfer, sale, demolition, or substantial alteration of eligible or existing National Register properties under Federal jurisdiction. In those instances where this might occur, all prudent and feasible alternatives will be considered fully and as necessary, mitigating measures will be implemented. Additionally, the Plan will not affect nonfederally owned districts, sites, buildings, structures, and objects of historical, architectural, or archaeological significance.

The Toiyabe National Forest will cooperate fully with the Nevada and California State Historic Preservation Officers.

See each alternative write up on Cultural Resources in this chapter for a discussion of the probable effects on Cultural Resources by implementing the various alternatives.

Mitigating Measures

All Alternatives contain mitigating measures designed to mitigate adverse effects which cannot be avoided. Some of the more important mitigating measures are:

(1) All activities within riparian areas will be guided by standards and guidelines designed to maintain the quality of riparian areas. [refer to the minimun management requirements (Appendix B) and Forest-wide standards and guidelines (pages IV-23 thru IV-28 of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

(2) Standards and guidelines to minimize adverse effects on visual quality from management practices have been incorporated into Forest-wide standards and guidelines. [refer to the Forest-wide standards and guidelies (pages IV-12 under Recreation of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

(3) The standard and guideline requiring a smoke management plan for every prescribed burn which complies with the Federal Clean Air Act Amendments of 1977 and "Smoke Management Guidelines for Forestry Prescribed Burning Operations for the State of Nevada" has been incorporated to reduce air and visibility pollution. [refer to the Forest-wide standards and guidelines (pages IV-13 & IV-14 of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

(4) The requirement that all chemicals be administered by a licensed Pest Applicator is designed to mitigate the use of chemicals in high value areas.

(5) Standards and guidelines have been incorporated to protect cultural resources. [refer to the Forest-wide standards and guidelines (pages IV-32 & IV-33 of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

(6) Minimum management requirements for other wildlife and plant species have been incorporated to maintain viable populations of all native vertebrate and plant species. [refer to the minimun management requirements (Appendix B)].

(7) Standards and guidelines have been incorporated to maintain soil productivity and water quality and to protect floodplains and wetlands. [refer to the minimun management requirements (Appendix B) and Forest-wide standards and guidelines (pages IV-22 & IV-23 of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

(8) Standards and guidelines have been incorporated to protect and enhance sensitive plant species. [refer to the minimun management requirements (Appendix B) and Forest-wide standards and guidelines (page IV-31 under Wildlife and Fish of the Proposed Land and Resource Management Plan for the Toiyabe National Forest) for a listing of these standards and guidelines].

A detailed explanation of the rationale for minimum management requirements is contained in Appendix B.

V. LIST OF PREPARERS

MANAGEMENT TEAM

R.M. "Jim" Nelson - Forest Supervisor

James Lawrence - Deputy Forest Supervisor

Michael King - District Ranger of Carson Ranger District

Mont Lewis - District Ranger of Austin Ranger District

John McGee - District Ranger of Bridgeport Ranger District

Guy Pence - District Ranger of Tonopah Ranger District

Robert Wise - District Ranger of Las Vegas Ranger District

Max Andrew - Administrative Officer

James Bradley - Public Affairs Officer

Harold Bolt - Recreation, Lands and Minerals

Barry Davis - Wildlife, Range, Soil and Water

Ken Dittmer - Timber and Fire

Frank Ferrarelli - Forest Supervisor (retired)

Dave Green - Engineering

Hugh Pangman - Deputy Forest Supervisor (transferred)

Terry Randolph - Planning, Program Planning and Development

INTERDISCPLINARY TEAM

Gregory Clark

B.S. in Forestry
M.S. in Forest Management
Three years experience as a forester on two ranger districts; two years experience as an operation research analyst in one supervisor's office and one year experience as a Land Use Planner in another supervisor's office.

Serves as the Interdisciplinary Team leader

Bruce Fox

B.S. in Range Management
Six years experience on various ranger districts, two years experience as District Ranger

Served as interdisciplinary team member responsible for range.

Kenneth Genz

B.S. in Forest Management and Range Management
Ten years experience as range conservationist and three years as team leader in unit planning.

Serves as interdisciplinary team member responsible for range.

Larry Hall

B.S. in Range Management
Two years experience as a reality specialist supervisor with the BLM, fourteen years as a forester in lands and four years experience in range analysis.

Served as interdisciplinary team member from 1980-1981 responsible for lands and minerals.

Neal Hitchock

B.S. in Wildlife Management
Six years experience in fire management.

Serves as interdisciplinary team member responsible for fire.

Richard Hubbell

B.S. in Wildlife Management
One year experience as a forestry technician on two forests, two years experience as a range conservationist on a forest and seven years as a wildlife biologist on two forests.

Serves as interdisciplinary team member responsible for wildlife.

Richard Jameson

B.S. in Watershed Management and Hydrology
Four and one half years experience as watershed restoration leader on two forests and eight years experience as the forest hydrologist on another forest.

Serves as interdisciplinary team member responsible for watershed.

John Jay Kincheloe

B.S. in Forestry
Two years experience as an assistant ranger, ten years experience as a district ranger, five years experience in timber management and nine years experience in watershed and water resource.

Served as interdisciplinary team member from 1980 to 1982 responsible for water rights.

Lonnie Kirby

B.S. in Forestry
Four and one half years experience as a sales forester, four and one half years experience as a logging system forester, four years experience as an assistant ranger and two years experience as operation research analyst in one supervisor's office.

Serves as interdisciplinary team member responsible for timber and as operation research analyst.

Robert Lacey

B.S. in Landscape Architecture, and M.L.A. in Landscape Architecture.
Eight years experience as landscape architect on one forest.

Serves as interdisciplinary team member responsible for visuals and recreation.

Robert Larkin
B.S. in Renewable Natural Resources
M.S. in Natural Resource Economics
Four years experience in range resource planning, implementation and monitoring and four years experience in forest resource planning, implementation and monitoring.

Serves as interdisciplinary team member responible for social and economic analysis.

Robert Mason

B.S. in Wildlife Management
M.S. in Wildlife Management
Eight years experience in range, special uses and minerals, one year experience as a Planner in a supervisor's office.

Served as interdisciplinary team member responsible for wildlife.

George Noble

B.S. in Forestry
Twenty years experience in recreation and landscape architecture in a supervisor's office.

Served as interdisciplinary team member from 1981-1982 responsible for recreation and visuals.

William Strohschein

B.S. in Civil Engineering
Nineteen years experience on various forests and one regional office in engineering.

Serves as interdisciplinary team member responsible for engineering.

Harry Summerfield

B.S. in General Agriculture and M.S. in Soil Science
Twenty four years experience on various forests as a soil scientist.

Serves as interdisciplinary team member responsible for soil input.

Dave Young

B.S. in Forestry
Eighteen years experience in timber, recreation and law enforcement on various ranger districts, one year experience as Criminal Investigator in a supervisor's office.

Served as a interdisciplinary team member responsible for recreation.

SUPPORT GROUP

Jean Backlund - Typist

Lucy Campbell - Typist

Roberta Engstrom - Typist

Sue Grubbs - Typist

Pam Hansen - Typist

Sylvia Larkin - Computer Services

Shirley Schlaegel - Typist

Beth Stover - Typist

David Tillet - Typist

Steve Benson - Computer Services

Gina Cronin - Typist

Pamela Fishlein - Forester
Operation Research Analyst

Millie Grune - Typist

Bonnie Kennedy - Typist

William Levere
Operation Research Analyst

Barry Stern - Timber

Sandy Sullivan - Typist/maps

VI. LIST OF AGENCIES, ETC.

A complete list of names and addresses of agencies, organizations, and persons to whom copies of the Statement are sent is on file in the Forest Supervisor's Office, Sparks, Nevada.

FEDERAL AGENCIES

- Department of Agriculture
  - Agricultural Stabilization and Conservation Service
  - Rural Electrification Administration
  - Soil Conservation Service
- Department of Commerce
  - National Oceanic and Atmospheric Administration
- Department of Energy
  - Wester Area Power Adminstration
- Department of Interior
  - Environmental Project Review Office
  - Bureau of Land Management State Offices (Nevada and California)
  - Geological Survey
  - National Park Service
  - U.S. Fish and Wildlife Service
  - Bureau of Relcamation
- Environmental Protection Agency

STATE OF NEVADA AND CALIFORNIA

- Governor (2)
  - Office of Community and Economic Development
- State Planning Coordinator
  - Resource Development Coordinating Committee (A-95)
- State Legislature (3)
  - Chairman, House Energy and Natural Resources Committee
  - Chairman, Senate Energy And Natural Resources Committee
- Department of Forestry
- Department of Fish and Game
- Regional Planning Agencies
- State Lands Commission
- Division of State Lands
- Division of State Parks
- Governors Multiple Use Commission
- Regional Planning Commission
- State Historical Preservation Office

COUNTY/LOCAL GOVERNMENTS

- Alpine county and local cites within the county.
- Elorado county and local cites within the county.
- Lassen county and local cites within the county.
- Nevada county and local cites within the county.
- Placer county and local cites within the county.
- Sierra county and local cites within the county.
- Douglas county and local cites within the county.

Washoe county and local cites within the county.
Carson county and local cites within the county.
Mono county and local cites within the county.
Lyon county and local cites within the county.
Mineral county and local cites within the county.
Eureka county and local cites within the county.
Lander county and local cites within the county.
Nye county and local cites within the county.
Esmeralda county and local cites within the county.
Clark county and local cites within the county.

ELECTED OFFICIALS

U.S. Senate

Honorable Paul Laxalt
Honorable Chic Hecht
Honorable Pete Wilson
Honorable Allen Cranston

House of Representatives

Honorable Barbara Vucanovich
Honorable Harry Reid
Honorable Richard Lehman

A detailed list of individuals, Indian tribes, libraries, organizations and industry which this document has been sent to is on file in the Forest Supervisor's Office in Sparks, Nevada.

VII. GLOSSARY

Access - Usually refers to a road or trail route over which a public agency claims a right-of-way for public use.

Acre equivalent - The index of acres affected by wildlife habitat improvements in contrast to actual acres treated.

Acre-foot - A measure of water or sediment volume equal to the amount which would cover an area of 1 acre to a depth of 1 foot (325,851 gallons).

Activity - The work processes or management practices that are conducted to produce, enhance, or maintain outputs or achieve administrative and environmental quality objectives (FSM 1309, Management Information Handbook). An activity can generate multiple outputs.

Activity area - The total area for which a ground-impacting activity is planned. An activity area may be a unit of a timber sale, a slash disposal or site preparation project, grazing allotment, etc., including the transportation facilities in and adjacent to the project area. This definition excludes site intensive developments such as campgrounds, mines, drill sites, aggregate source areas, and water developments.

Activity fuels - Logging debris generated from any activity on the Forest such as firewood gathering, precommercial thinning, timber harvesting, and road construction, which increases fire potential.

Activity outputs - The quantifiable goods or services resulting from any management actions taken on the Forest.

Administrative headquarters site - A site which exists primarily for general administrative purposes. It normally will include office, warehouse, outside storage, and parking areas. It may include housing and pasture for livestock. A work center may be part of an administrative headquarters site.

Administrative unit - All the National Forest System lands for which one Forest Supervisor has responsibility.

Affected environment - The natural and physical environment under the administration of one line officer, such as District Ranger or Forest Supervisor.

Age class - An interval, usually 10 to 20 years, into which the age ranges of vegetation are divided for classification or use.

Agricultural base - Economy in which the base industry of a community is agriculture.

Airshed - A geographic area that, because of topography, meteorology, and climate, shares the same air. As applied to the National Forest by the Clean Air Act, amended August 1977, the term covers all wilderness areas larger than 5,000 acres that were in existence as of August, 1977.

Allotment - See Range allotment.

Allowable sale quantity - The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the Plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity."

Alternative - One of several policies, plans, or projects proposed for decision making.

Analysis area - One or more "cells" grouped for purposes of analysis. Analysis areas are cells in the same capability zone, working group, road cost zone, slope and timber condition class. Analysis areas are cells that have been grouped based on common impacts, effects, and social or economic factors.

Analysis of the Management Situation (AMS) - A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.

Animal Unit Month (AUM) - The amount of forage required by one mature (1,000 lb.) cow and calf or that equivalent for one month.

Annual Forest Program - The summary or aggregation of all projects that make up an integrated (multifunctional) course of action, at a given level of funding for a Forest planning area, that is consistent with the Forest Plan.

Appropriate costs - The sum of operational and capital investment costs.

Aquatic ecosystems - There are the stream channel, lake, or estuary bed, water itself and biotic communities that occur therein.

Arterial roads - Primary traffic route serving a large area and providing travel efficiency for many activities. Arterial roads are non-project roads, usually built with Agency funds.

Assessment - The Forest and Rangeland Renewable Resource Assessment required by the Resources Planning Act (RPA).

In soil and water terminology, an acreage determination of all system roads, spur roads, landings, and constructed skidroads that should be made for each land-disturbing project area. (A typical timber sale will contain three to five percent of the area in this condition.) In addition, acreages displaying other forms of determental disturbance should be determined. These are typically areas of moderate compaction, erosion, displacement, or shallow puddling. (A typical timber sale will contain five to 35% of the area in this condition in addition to the roads, landings, etc., mentioned above, depending upon logging systems used.) These less severe types of detrimental disturbance generally offer the best opportunities for successful productivity restoration.

Available forest land - Land which has not been legislatively withdrawn or administratively withdrawn by the Secretary of Agriculture or Forest Service Chief from timber production.

Average annual cut - The volume of timber harvested in a decade, divided by 10; used as a basis for comparison of alternatives, not as a measure of nondeclining yield.

Background - The visible terrain beyond the foreground and middleground where individual trees are not visible but are blended into the total fabric of the stand. Also the portion of a view between three to five miles from the observer, and as far as the eye can detect objects.

Basal area - The area of the cross-section of a tree stem near the base, generally at breast height and inclusive of bark.

Base sale schedule - A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. (This definition expresses the principle of nondeclining flow.)

Baseline - With respect to soils, the amount of erosion and sedimentation due to natural sources in the absence of human activity.

Benefit - The total value of an output or other effect.

Best Management Practices (BMP) - A practice or combination of practices that are the most effective and practical (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

Big game - Those species of large mammals normally managed as a sport hunting resource.

Big-game management unit - Political/biological units of land used by the Nevada and California Department of Fish and Game as season-setting and data collection areas.

Big-game summer range - The area available to and used by big game through the summer season.

Big game winter range - The area available to and used by big game through the winter season.

Biological capacity - The average net growth of wood attainable under intensive management.

Biological control - A method to control insect populations or tree diseases through the use of applied technology.

Biological growth-potential - The average net growth attainable in a fully stocked natural forest stand.

Biological potential - The maximum possible output of a given resource, limited only by its inherent physical and biological characteristics.

Biotic condition Index - An index that expresses how close an acquatic ecosystem is to its own potential. Expressed as a percentage.

Board feet - The amount of wood equivalent to a piece of wood one foot by one foot by one inch thick. Generally, five board feet log measure is equivalent to one cubic foot of round wood.

Board foot/cubic foot conversion ratio - Both board foot and cubic foot volumes can be determined for timber stands. The number of board feet per cubic foot of volume varies with tree species, diameter, height, and form factors. For the Toiyabe, the Forest-wide average conversion ratio is 6.45 board feet per cubic foot. A specific factor by species is applied to the cubic foot FORPLAN outputs to give board foot estimates.

British Thermal Unit - The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

Browse - Twigs, leaves, and young shoots of trees and shrubs on which animals feed; in particular, those shrubs which are utilized by big game animals for food.

Calving areas - Areas traditionally used by the cow elk for giving birth and rearing calves until they are approximately two weeks old. These areas are located where escape and thermal cover exists for the cows and the relatively immobile newborn calves. Succulent forage is usually available for the lactating female. Water is found in the immediate areas and the terrain is gentle with slopes of 15 percent or less interspersed with steeper sites. These areas are normally found along the upper portion of the spring migration route.

Canopy - The more-or-less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Capable lands - Those portions of the Forest that have an inherent ability to support trees for timber harvest and produce at least 20 cubic feet/acre/year of wood fiber.

Capability - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capability zone - Land capability zones used in FORPLAN.

Capital investment costs - Those costs associated with construction or development of improvements; includes road construction, reforestation, campground construction, range improvements, etc.

Carrying capacity - The number of organisms of a given species and quality that can survive in, without causing deterioration of, a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time. As used in the determination of elk habitat effectiveness, carrying capacity is the estimated capability (expressed as the number of elk per square mile) of the elk herd subunit to provide quality elk habitat.

Catastrophic condition - A significant change in forest conditions on the area that affects Forest Plan resource management objectives and their projected and scheduled outputs, uses, costs, and effects on local communities and environmental quality.

Cavity - The hollow excavated in trees by birds or other natural phenomena; used for roosting and reproduction by many birds and mammals.

Cell - The basic information unit used in the Toiyabe NF planning data base a unique land unit defined by a combination of characteristics such as land ownership, timber strata, range suitability, wildlife habitat areas, etc.; synonymous with "capability area" used by other Forests.

Characteristic landscape - The overall impression created by a landscape's unique combination of visual features (land, vegetation, water structures), as seen in terms of form, line, color and texture; synonymous with "visual landscape character."

Clearcutting - The cutting method that describes the silviculture system in which the old crop is cleared over a considerable area at one time. Regeneration then occurs from (a) natural seeding from adjacent stands, (b) seed contained n the slash or logging debris, (c) advance growth, or (d) planting or direct seeding. An even-aged forest usually results.

Climax - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.

Closure - The administrative order restricting either location, timing, or type of use in a specific area.

Collector roads - Roads constructed to serve two or more elements but which do not fit into the other two categories (arterial or local). Construction costs of these facilities are prorated to the respective element served. These roads serve smaller land areas and are usually connected to a Forest arterial or public highway. They collect traffic from Forest roads or terminal facilities. The location and standard are influenced by both long-term multi-resource service needs and travel efficiency. Forest collector roads are operated for constant service.

Congressional study areas (Planning Areas) - Roadless areas identification in the California Wilderness Act of 1984 Requiring a wilderness study and report to congress within three years of the Act.

Commercial Forest Land - Used under old timber classification; Forest land which is capable of producing crops of industrial wood and which has not been reserved or deferred; includes both accessible and nonaccessible areas that produce more than 20 cubic feet of growth per acre each year. Permanently inoperable or nonstockable areas are excluded because they are unsuitable for silvicultural management. Conversely, nonstocked areas which are stockable and otherwise meet this definition are included.

Commodities - Products produced from a parcel of land; e.g., outputs of wood, livestock forage, and minerals.

Common minerals - Deposits such as sand, stone, gravel, and clay.

Compartment - Land areas, generally watersheds, averaging 5,000 to 7,000 acres in size, which act as timber data storage units.

Condition class - A grouping of timber strata into size-age-stocking classes for Forest planning.

Community lifestyles - The ways in which residents conduct their everyday routines and how the "way they live" is associated with the National Forest.

Confinement - To restrict the fire within determined boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis. The normal tactic is surveillance only.

Conifer - Those cone-bearing trees, mostly evergreen, including the pine, spruce, fir, etc.

Consumptive use - A use of resources that reduces the supply, such as logging and mining. See also "Nonconsumptive use."

Containment - To surround a fire, and any spot fires therefrom, with control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions. The normal tactic is indirect attack and burn to human-made or natural barrier with little or no mop-up.

Control - To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved, burn out any unburned area adjacent to the fire side of the control line, and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions. The normal tactic is direct attack on the fire, if possible, and mop-up.

Coordinated allocation and scheduling zone (CASZ) - An area of land used,for analytical purposes, to assure that compatible activities and uses can be assigned and scheduled to meet a specific management objective.

Corridor - A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Cost effectiveness - Achieving specified outputs or objectives under given conditions for the least cost.

Cost-efficiency - The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least costly manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate.

Council on Environmental Quality - An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Critical habitat - Key land areas used by wildlife for forage and reproduction.

Crown height - Of a standing tree, the vertical distance from ground level to the base of the crown measured either to the lowest live branchwhorl or to the lowest live branch (excluding shoots arising spontaneously from buds on the stem of a woody plant) or to a point halfway between.

Cubic foot - The amount of timber equivalent to a piece of wood one foot by one foot by one foot.

Cubic yard - A measure of soil or sediment volume which would cover a square yard of area one yard deep (3 feet x 3 feet x 3 feet).

Culmination of mean annual increment - The point where the mean annual growth increment (the basal area of a stand of trees divided by their age) ceases to increase prior to decline.

Cultural resource - The remains of sites, structures, or objects used by humans in the past--historical or archaeological.

Cultural sensitivity - Refers to the likelihood of encountering significant cultural volumes (quantity and/or quality) which may affect and be affected by ground-disturbing activities.

Cutting cycle - The planned lapse of time between successive cuttings in a stand.

Diameter at breast height - The diameter of a tree measured 4 feet 6 inches above the ground.

Data - Any recorded measurements, facts, evidence, or observations reduced to written, graphical, tabular or computer form. The term implies reliability, and therefore, provides an explanation of source, type, precision and accuracy.

Deficit timber sale - A timber sale where the costs associated with producing the primary product(s) plus profit margin are greater than the selling value of the same product(s).

Decking areas - Sites that are intermediate between stump and landing, used to collect logs.

Decision criteria - Essentially the rules or standards used to evaluate alternatives. They are measurements or indicators that are designed to assist a decisionmaker to identify a preferred choice from the array of possible alternatives.

Demand - The quantity of goods or services called for at various prices, holding other factors constant.

Departure - The temporary deviation from the non-declining even-flow policy.

Dependent communities - Communities whose social, economic, or political life would become discernably different in important respects if market or nonmarket outputs from the National Forests were cut off.

Design capacity - The maximum theoretical amount of use a developed recreation site was built to accommodate.

Design standard - Approved design and construction specifications mainly used for recreation facilities and roads--includes specified materials, colors, dimensions, etc.

Designated corridor - A linear area of land with defined and recognized boundaries identified and designated by legal public notice.

Destination resort - A recreation resort designed for multi-day use in contrast to day use.

Detrimental Disturbance - The alteration of the natural soil characteristics which results in immediate and/or prolonged violations of off-site resources quality standards or a reduction in timber volume growth (timber sites) or biomass production (non-timbered sites) of more than 25 percent.

Detrimental disturbance is represented by the following physical characteristics:

(A) Soil Puddling - Where the soil has been manipulated in a saturated or nearly saturated condition to the point that natural structural identity is lost.

(B) Soil Compaction - Where one or more of the following conditions occur in relation to natural: a 50% reduction in macropore space; less than 15% macropore space, total; 15% increase in soil bulk density; or a 40% reduction in hydraulic conductivity. (All measurements at the 6" depth.)

(C) Displacement - Where, through erosion or mechnical means, more than 50% of the natural A1 and/or AC horizons (dark colored surface horizons) is removed from more than 20% of an activity area, excluding system roads and permanent facilities. Displacement on specific sites smaller than 100 square feet (continuous) or where soil has moved less than 10 feet from its predisturbance position will not normally be considered significant.

Developed recreation - Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

Developed recreation site - Relatively small, distinctly defined area where facilities are provided for concentrated public use; e.g., campgrounds, picnic areas, swimming areas.

Direct outputs - Resource outputs that are caused by the action and occur at the same time and place.

Discount rate - An interest rate that represents the cost or time value of money in determining the present value of future costs and benefits.

Discounting - An adjustment, using a discount rate, for the value of money over time so that costs and benefits occurring in the future are reduced to a common time, usually the present, for comparison.

Dispersed recreation - A general term referring to recreation use outside the developed recreation site; this includes activities such as scenic driving, hunting, backpacking, and recreation in primitive environments.

Distance zone - One of three categories used in the Visual Management System to divide a view into near and far components. The three categories are: (1) foreground, (2) middle ground, and (3) background.

Diversity - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

Draft Environmental Impact Statement - The statement of environmental effects which is required for major Federal actions under Section 102 of the National Environmental Policy Act, and released to the public and other agencies for comment and review.

Early forest succession - The biotic community that develops immediately following the removal or destruction of the vegetation in an area.

Economic efficiency analysis - An analytical method in which incremental market and nonmarket benefits are compared with incremental economic costs.

Ecological status - The present state of the vegetation and soil protection of an ecological site in relation to the potential Natural Community for the site.

High status - Near climax vegetation.

Moderate status - Approaching climax vegetation.

Low status - Seral state of vegetation.

Economic growth - Increased economic output in real terms over time.

Ecosystems - An interacting system of organisms considered together with their environment; for example, marsh, watershed, and lake ecosystems.

Edge - Area where plant communities meet or where successional stages or vegetation conditions within the plant communities come together.

Effects - Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in this statement are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial (40 CFR 1508.8).

Effective ground cover - All vegetative material within three feet of the exposed soil surfaces as well as any additional litter, rock, and rock fragments on the soil surface.

Electronic sites - Areas designated for the operation of equipment which transmits and receives radio signals, excluding television aerials and antennas, for local pickup of programing and passive reflectors.

Endangered species - Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plants or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.

Endemic - An insect or disease occurring regularly in a locality or region with its normal status at low to moderate severity levels.

Endemic plant - A plant confined to a certain country or region and with a comparatively restricted geographic distribution.

Environmental analysis - An analysis of alternative actions and their predictable short-and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions.

Environmental Assessment - The concise public document required by the regulations for implementing the procedural requirements of NEPA (40 CFR 1508.9).

Environmental Impact Statement (EIS) - A statement of the environmental effects of a proposed action and alternatives to it. It is required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for comment and review. It is a formal document that must follow the requirements of NEPA, the Council on Environmental Quality (CEQ) guidelines, and directives of the agency responsible for the project proposal.

Evaluation criteria - Standards developed for appraising alternatives.

Even-aged management - The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes) throughout the forest area. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

Even-aged silviculture - The combination of timber management actions that result in the creation of stands where trees of essentially the same age grow together.

> Clearcutting - The removal, in a single cut, of all trees in stands larger than seedlings.
>
> Seed tree cutting - Similar to clearcutting, except that a few of the better trees of the desired species are left scattered over the area to provide seed for regeneration.
>
> Shelterwood cutting - The removal of all trees in a series of two or more cuts over a period of not more than 30 years.

Even-aged systems - Product stands in which all trees are of about the same age. (A spread of 10 to 20 years is generally considered one age class). Cutting methods producing even-aged stands are clearcut, shelterwood, or seed tree systems.

Even-flow - Maintaining a relatively constant supply of timber from decade to decade.

Extensive grazing - Management seeks full utilization of forage assigned to livestock. Cost-effective management systems and techniques, including fencing and water development, are designed and applied to obtain relatively uniform livestcok distribution and use of forage and maintain plant vigor.

Facilities - Transportation planning, road management and operation, fleet equipment, and engineering services (for example, administrative buildings, water and sanitation systems, sanitary landfills, dams, bridges, and communication systems).

Facility condition class - The rating system used in the Recreation Information Management System to classify the condition of repair that a specific facility is in and maintenance needs of recreation sites and areas. Used for planning and budget requests.

Fee ownership - Ownership of property that has no limitation, qualification, or condition affecting it and is the maximum possible ownership in real estate under the system of property rights founded on English common law.

Fee purchase - Acquisition of fee ownership to a piece of property.

Fee site - A Forest Service recreation area in which users must pay a fee. Fee sites must meet certain standards and provide certain facilities as specified in the Forest Service Manual.

Final cut - Removal of the last seed bearers or shelter trees after regeneration is considered to be established under a shelterwood system.

Fire hazard - The fuel in which a fire will ignite and burn.

Fire management - All activities required for protection of resources from fire and the use of fire to meet land management goals and objectives.

Fire risk - The potential cause of a fire.

Fisheries habitat - Streams, lakes, and reservoirs that support fish.

Flood plains - The lowland and relatively flat area adjoining inland waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Forage - All browse and nonwoody plants that are available to wildlife for grazing or harvested for feeding.

Forage/cover ratio - The ratio of cover areas (defined as certain timber strata) to non-cover areas of the Forest.

Forest and Rangeland Renewable Resources Planning Act of 1974 - An Act of Congress requiring the preparation of a program for the management of the National Forests' renewable resources and of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of all National Forest System lands and renewable resources.

Forest land - Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for nonforest use. Lands developed for nonforest use includes areas for crops, improved pasture, residential, or adminstrative areas; improved roads of any width, and adjoining road clearing and powerline clearing of any width. The term "occupancy," when used to define forest land, will be measured by canopy cover of live forest trees at maturity. The minimum area for classification of forest land is one acre. Unimproved roads, trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet wide.

Foreground - A term used in visual management to describe the landscape immediately adjacent to the high-value scenic area, recreation facility, or forest highway.

Forest development roads and trails - A legal term for Forest roads or trails that are under the management of the Forest Service.

Forest Supervisor - The official responsible for administering the National Forest System lands in a Forest Service administrative unit, which may consist of two or more National Forests or all the Forests within a state. He reports to the Regional Forester.

Forest system roads - Roads that are part of the Forest development transportation system, which includes all existing and planned roads as well as other special and terminal facilities designated as Forest development transportation facilities. (See arterial roads, collector roads, and local roads.)

FORPLAN - A linear programing system used for developing and analyzing Forest planning alternatives.

Fuel break - A zone in which fuel quantity has been reduced or altered to provide a position for suppression forces to make a stand against wild fire. Fuel breaks are designated or constructed before the outbreak of a fire. Fuel breaks may consist of one or a combination of the following: natural barriers, constructed fuel breaks, manmade barriers.

Fuel model - A simulated fuel complex for which all the fuel descriptions required by the mathematical fire spread model have been specified.

Fuel treatment - The rearrangement or disposal of natural or activity fuels to reduce the fire hazard. Fuels are defined as both living and dead vegetative materials consumable by fire.

Fuels - Include both living plants and dead, woody vegetative materials which are capable of burning.

Fuels management - The practice of planning and executing treatment or control of any vegetative material that adversely affects meeting fire management direction based upon resource management goals and objectives.

Full-service management - The management, administration, operation, and maintenance of developed sites (except VIS) to established standards and management objectives for public service and use. Management objectives are based on site capacity, site protection needs, seasonal demands for public use, and desired levels of service to enhance the visitor's experience and convenience and provide optimum maintenance.

Further Planning Areas - These are Roadless Areas identified in the Roadless Area Review and Evaluation for future wilderness study.

Game species - Any species of wildlife or fish for which seasons and bag limits have been prescribed and which are normally harvested by hunters, trappers, and fishermen under state or Federal laws, codes, and regulations.

General Aquatic Wildlife System (GAWS) - Wildlife inventory, evaluation data storage system to predict aquatic habitat conditions and the vulnerability of habitats to impact.

Goal - A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.

Goods and services - The various outputs, including on-site uses, produced from forest and rangeland resources.

Grass/forb - An early Forest successional stage where grasses and forbs are the dominant vegetation.

Group selection cutting - The cutting method that describes the silvicultural system in which trees are removed periodically in small groups, resulting in openings that do not exceed an acre or two in size. This leads to the formation of an uneven-aged stand in the form of a mosaic of age-class groups in the same forest.

Growing season - The months of the year during which a species of vegetation grows.

Guideline - An indication or outline of policy or conduct; i.e., any issuance that assists in determining the course of direction to be taken in any planned action to accomplish a specific objective.

Habitat - The place where a plant or animal naturally or normally lives or grows.

Habitat diversity index - A measure of habitat diversity improvement expressed as a percentage of optimum size class distribution that is achieved over time.

Habitat grouping - Grouping of habitat types in logical categories to facilitate resource planning.

Habitat type - The aggregate of all areas that support or can support the same primary vegetation at climax.

Hiding cover - Vegetation that will hide 90 percent of an elk from the view of a human at a distance of 200 feet or less. The distance at which the animal is essentially hidden is called a "sight distance."

Horizontal diversity - The distribution and abundance of different plant and animal communities or successional stages across an area of land; the greater the number of communities, the higher the degree of horizontal diversity.

Identifier - A characteristic that helps define an analysis area. Identifiers for analysis areas on the Toiyabe NF include capability zone, timber working group, road cost zone, timber condition class, etc.

Implementation - Those activities necessary to respond to the approved Land and Resource Management Plan.

Incidental grazing - Grazing use that occurs on lands not managed for the production of domestic livestock. May occur as a result of natural herd movement, trailing of livestock, or the use of domestic livestock in recreation.

Indeterminate stands - A group of trees of similar age and species composition that has been invaded by other tree species to the point where the original group has lost its identify as a discrete unit.

Indirect outputs - Outputs caused by the action but which are later in time or farther removed in distance, although still reasonably foreseeable.

Individual (single) tree selection - The cutting method that describes the silvicultural system in which trees are removed individually, here and there, each year over an entire forest or stand. The resultant stand usually regenerates naturally and becomes all-aged.

Induced outputs - Outputs in the private sector induced by the direct outputs produced on the Forest.

Indicator species - A plant or animal species adapted to a particular kind of environment. Its presence is sufficient indication that specific habitat conditions are also present.

Input/output analysis - A quantitative study of the interdependence of a group of activities based on the relationship between inputs and outputs of the activities. The basic tool of analysis is an input-output model for a given period that shows simultaneously for each economic sector the value of inputs and outputs, as well as the value of transactions within each economic sector. It has especially been applied to estimate the effects of changes in Forest output levels on local economic activity.

Instream flows - A prescribed level (or levels) of streamflow, usually expressed as a stipulation in a permit authorizing a dam or water diversion for the purpose of meeting National Forest System management objectives.

Integrated pest management - A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated population on various resource values, alternative regulation tactics and strategies and benefit/cost estimates of those alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides.

Intensity - Indicates the number of timber stnad entries, or for areas without timber harvest, indicates the level of investment undertaken.

Intensive grazing - Grazing management that controls distribution of cattle and duration of use on the range, usually by fences, so parts of the range are rested during the growing season.

Intensive management - A high investment level of timber management that includes use of precommercial thinnings, commercial thinnings, genetic ally improved stock, and control of competing vegetation.

Interdisciplinary approach - The utilization of individuals representing two or more areas of knowledge and skills focuing on the same task, problem, or subject. Team member interaction provides necessary insight to all stages of the process.

Intermediate cutting - Any removal of trees from a stand between the time of its formation and the regeneration cut. Most commonly applied intermediate cuttings are release, thinning, improvement, and salvage.

Intermittent streams - A stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow in mountainous areas.

Intermountain Region - That part of the National Forest System which encompasses National Forests within the Intermountain Region (Utah, southern and central Idaho, western Wyoming, and Nevada).

Interpretive services - Visitor information services designed to present educational and recreational values to Forest visitors to enhance their understanding, appreciation, and enjoyment of the Forest.

Inventory data and information collection - The process of obtaining, storing, and using current inventory data appropriate for planning and managing the Forest.

Irretrievable - Applies to losses of production, harvest, or commitment of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible - Applies primarily to the use of nonrenewable resources, such as minerals or cultural reosources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

Issue - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

Juxtaposition - Relative position of forage, cover, and other important components within a compartment. The following ratings have been developed:

a. Good juxtaposition - Forage and cover sites are well interspersed throughout the landscape. Forage areas are usually less than 1000 feet wide and most cover areas are between 600 and 1200 feet wide.

b. Fair juxtaposition - Forage and cover sites are moderately well-interspersed throughout the landscape.

c. Poor juxtaposition - Forage and cover sites are not well interspersed. Large blocks of either forage or cover are in local areas.

Kuchler vegetation types - Potential natural vegetation of the coterminous United States, classified by Kuchler.

Key winter range - The portion of the year-long range where big game find food and/or cover during severe winter weather.

Land class - The topographic relief of a unit of land. Land classes are separated by slope, which coincides with the timber inventory process. The three land classes used in the Forest Plan are defined by the following slope ranges: 0 to 40 percent; 40 to 60 percent; and greater than 60 percent.

Land exchange - The conveyance of non-Federal land or interests in the United States in exchange for National Forest System land or interests in land.

Land Systems Inventory (LSI) - A land stratification system based on geomorphic principles, described in Thompson and Larson's "Land Systems Inventory, Toiyabe National Forest."

Landtype association - A grouping of landtypes representing the broadest level in the land stratification system. Obvious elements of soils, landform and vegetation are distinguishing factors.

Landing - Any place where round timber is assembled for further transport, commonly with a change of method.

Landline - For Forest Plan purposes, National Forest property boundaries.

Landline location - Legal identification and accurate location of National Forest property boundaries.

Landtype - Visually identifiable unit areas resulting from homogeneous geomorphic and climatic process and having defined patterns of soils and vegetative potentials.

Late Forest succession - A stage of Forest succession where the majority of trees are mature or overmature.

Landownership pattern - The National Forest System resource land base in relation to other landownerships within given boundaries.

Leasable minerals - Coal, gas, oil, phosphate, sodium, potassium, oil shale, sulphur and geothermal steam.

Level IV Law Enforcement Officer - A Forest Service employee who has graduated from the Federal Law Enforcement Academy and holds a law enforcement commission signed by the Regional Forester. District Level IV officers generally perform other duties as well as law enforcement.

Locatable minerals - Those hardrock minerals which are mined and processed for the recovery of metals.

Linear programming - A mathematical method used to determine the cost-effective assignment of limited resources between competing demands when both the objective; e.g., profit or cost, and the restrictions on its attainment are expressible as a system of linear equalities or inequalities.

Local dependent industries - Industries relying on National Forest outputs for economic activity.

Local roads - Roads constructed and maintained for, and frequented by, the activities of a given resource element. Some use may be made by other element activities, but normally maintenance is not affected by such use. These roads connect terminal facilities with Forest collector or Forest arterial roads or public highways. The location and standard are usually determined by the requirements of a specific resource activity rather than by travel efficiency. Forest local roads may be developed and operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility.

Logging residues - The unused portions of poletimber and sawtimber trees remaining after logging.

Long-term sustained yield timber capacity - The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

Maintenance level - Low level of management; activities are limited to those that provide for public safety, those that prevent environmental damage to downstream or adjoining lands and resources, those necessary to administer existing and new special uses, and those necessary to protect soil and water resources and land productivity.

Management area - An area of land with similar management goals and a common management prescription.

Management concern - An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

Management direction - A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

Management indicator species - A species selected because its population changes indicate effects of management activities on the plant and animal community. A species whose condition can be used to assess the impacts of management actions on a particular area.

Management practice - A specific activity, measure, course of action, or treatment.

Management prescription - Management practices and intensity selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Mature timber - Trees that have attained full development, particularly height, and are in full seed production.

Market-value outputs - Goods and services valued in terms of what people are willing to pay for them, as evidenced by market transactions.

Maximum modification - A visual quality objective. Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Mean annual increment of growth - The total increase in girth, diameter, basal area, height, or volume of individual trees, or a stand up to a given age divided by that age.

Middleground - The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the stand.

Mineral development - The preparation of a proven deposit for mining.

Mineral entry - The filing of a mining claim for public land to obtain the right to any minerals it may contain.

Mineral entry withdrawal - The exclusion of the right of exclusive possession by the locator, of locatable mineral deposits and mineral development work on areas required for administrative sites by the Forest Service and other areas highly valued by the public. Public lands withdrawn from entry under the general mining laws and/or the mineral leasing laws.

Mineral exploration - The search for valuable minerals on lands open to mineral entry.

Mineral production - Extraction of mineral deposits.

Mineral soil - Weathered rock materials without any vegetative cover.

Minimum streamflows - A specified level of flow through a channel that must be maintained by the users of streams for biological, physical, or other purposes.

Mining claims - That portion of the public estate held for mining purposes in which the right of exclusive possession of locatable mineral deposits is vested in the locator of a deposit.

Mitigation - Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

Model - A representation of reality used to describe, analyze, or understand a particular concept. A "model" may be a relatively simple qualitative description of a system or organization, or a highly abstract set of mathematical equations.

Modification - A visual quality objective; man's activity may dominate the characteristic landscape but must concurrently use natural established form, line, color and texture. Activities should appear as natural occurrences when viewed in foreground or middleground.

Monitoring and evaluation - The periodic evaluation on a sample basis of Forest Plan management practices to determine how well objectives have been met and how closely management standards have been applied.

Mortality - Trees of commercial species, standing or down, that have died during a specified period, and were not cull trees at the time of death.

Mountain Pine Beetle - A tiny black insect, ranging in size from 1/8 to 3/4 inch, that bores its way into the tree's cambium and cuts off its supply of food, thus killing the tree.

Multiple Use - The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

National Environmental Policy Act (NEPA) - An Act to declare a National policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, to enrich the understanding of the ecological systems and natural resources important to the Nation and to establish a Council on Environmental Quality.

National Forest Land and Resource Management Plan - A Plan developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given National Forest.

National Forest landscape management system - The art and science of planning and administering the use of Forest lands in such ways that the visual effects maintain or upgrade man's psychological welfare. It is the planning and design of the visual aspects of multiple-use land management.

National Forest Management Act (NFMA) - A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

National Forest System (NFS) lands - National Forests, National Grasslands, or purchase units, and other lands under the management of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

National Recreation Trails - Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the National system of trails authorized by the National Trails System Act. National Recreation Trails provide a variety of outdoor recreation uses in or reasonably accessible to urban areas.

National Register of Historic Places - A listing (maintained by the U.S. National Park Service) of areas which have been designated as being of historical significance. The Register includes places of local and state significance as well as those of value to the Nation.

National Wilderness Preservation System - All lands covered by the Wilderness Act and subsequent Wilderness designations, irrespective of the department having jurisdiction.

Natural barrier - A natural feature that will restrict livestock movements, such as a dense stand of trees or downfall.

Natural catastrophic condition - A significant change in Forest conditions on the area that affects Forest Plan resource management objectives and their projected and scheduled outputs, uses, costs, and impacts on local communities and environmental quality.

Net public benefits - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple use and sustained yield.

No-action alternative - The most likely condition expected to exist in the future if current management direction were to continue unchanged.

Noncommercial forest land - Sites incapable of producing 20 cubic feet per acre per year or more of timber for industrial wood. This would include areas which are rocky, dry, steep, cliffy, or sterile soils, e.g.: slickrock country that has vegetation.

Noncommercial vegetative treatment - The removal of trees for other than timber production purposes.

Noncommodity outputs - Resource outputs that cannot be bought and sold.

Nonconsumptive use - That use of a resource that does not reduce the supply. For example, nonconsumptive use of water includes hydroelectric power generation, boating, swimming, and fishing.

Nondeclining flow - The principle expressed by the definition of the base sale schedule.

Nonforest land - Lands never having or incapable of having greater than 10 percent of the area occupied by forest trees, and lands formerly forested and currently developed for nonforest use.

Nongame - Species of animals which are not managed for sport hunting.

Nonpoint source pollution - Sources of pollution that are diffuse in origin, their transportation into receiving water not well defined or constant, their discharge occurring at many diffuse locations, and depending heavily on weather conditions such as rainstorms or snowmelt. Pollution from Forest management is of this type.

Nonmarket valued outputs - Goods and services not generally traded in the marketplace, but valued in terms of what reasonable people would be willing to pay for them rather than go without. Those obtaining the actual outputs do not necessarily pay what they would be willing to pay for them.

Notice of Intent - Written notice to the affected District Ranger, by those who intend to engage in mining activity on the Forest, of proposed prospecting, exploration, mining, and mineral processing activities. Also, a notice in the Federal Register of intent to prepare an Environmental Impact Statement on a proposed action.

Noxious weeds - A plant species that is undesirable. It conflicts, restricts, or otherwise causes problems with management objectives.

Nursery areas - Areas used for cover and forage by elk cows and calves until the calves are approximately six weeks old. These areas may be the same as calving areas or far removed from where birth occurred.

Objective - A concise, time-specific statement of measurable planned results that respond to preestablished goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals.

Occupancy trespass - The illegal occupation or possession of National Forest land or property.

Off-road vehicle (ORV) - Vehicles such as motorcycles, all-terrain vehicles, four-wheel drive vehicles, and snowmobiles.

Old growth - A stand of trees that is past full maturity and showing decadence; the last stage in forest succession.

Old growth habitat - Habitat for certain wildlife that is characterized by overmature coniferous forest stands with large snags and decaying logs.

Oligotrophic - Lakes having low nutrient supplies which are poor producers of organic matter.

Open road density - Miles of road per square mile of elk habitat which has not been administratively or physically closed to motor vehicles during the time elk occupy an area. This is calculated for forage and cover areas by compartment.

Operational costs - Those costs associated with administering and maintaining National Forest facilities and resource programs.

Operational Plan - A written document approved by the Forest Supervisor which provides specifically, at the project level, for implementation of the management direction established in the Forest Plan.

Opportunity - A statement of general actions, measures, or treatments that address a public issue or management concern in a favorable way.

Optimum - A level of production that is consistent with other resource requirements as constrained by environmental, social, and economically sound conditions.

Outputs - The goods, services, products, and concerns which are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. Goods, end products, or services that are purchased, consumed, or utilized directly by people. A broad term for describing any result, product, or service that a process or activity actually produces.

Overflow camping - Developed site camping that occurs in excess of designed site capacity.

Overmature timber - Trees that have attained full development, particularly in height, and are declining in vigor, health, and soundness.

Overstory - That portion of the trees, in a Forest or more than one story, forming the upper or uppermost canopy.

Partial retention - A visual quality objective; man's activities may be evident but subordinate to the characteristic landscape.

Particulates - Small particles suspended in the air and generally considered pollutants.

Patented mining claim - A patent is a document which conveys title to land. When patented, a mining claim becomes private property and is land over which the United States has no property rights, except as may be reserved in the patent. After a mining claim is patented, the owners does not have to comply with requirements of the General Mining Law or implementing regulations.

Payment in lieu of taxes - Payments to local or state governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976 by U.S. Department of the Interior.

Personal use - Normally used to describe the type of permit issued for removal of wood products (firewood, post, poles, and Christmas trees) from National Forest land when the product is for home use and not to be resold for profit.

Persons-at-one-time (PAOT) - A recreation capacity measurement term indicating the number of people who can use a facility or area at one time.

Person-year - Approximately 2,080 working hours. May be filled by one person working year long or several people filling seasonal positions.

Planned ignitions - A fire started by a deliberate management action.

Planning area - The area of National Forest land covered by a Regional Guide or Forest Plan.

Planning corridor - A general broad linear area of land used to evaluate where a specific right-of-way could be placed.

Planning criteria - Standards, tests, rules, and guidelines by which the planning process is conducted and upon which judgments and decisions are based.

Planning period - The 50-year time frame (1980-2030) for which goods, services, and effects were projected in the development of the Forest Plan.

Planning questions - A major policy question of long-range significance, derived from the public issues and management concerns, to be decided when selecting among alternative Forest Plans.

Planning records - A system that records decisions and activities which result from the process of developing a Forest Plan, revision, or significant amendment.

Pole/sapling - A Forest successional stage in which trees between 5- and 7-inch diameter are the dominant vegetation.

Pole timber - Line trees of at least 5 inches in diameter at breast height, but smaller than the minimum utilization standard for sawtimber.

Policy - A guiding principle which is based on a specific decision or set of decisions.

Practices - Those management activities that are proposed or expected to occur.

Precommercial thinning - The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster.

Predator - One that preys, destroys, or devours--usually an animal that lives by preying on other animals.

Preparatory cut - The removal of trees near the end of a rotation, which permanently opens the canopy and enables the crowns of seed bearers to enlarge, to improve conditions for seed production and natural regeneration. Typically done in the shelterwood system.

Prescribed fire - A wildland fire burning under specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Plans for use of unplanned ignitions for this purpose must be approved by the Regional Forester.

Preservation - A visual quality objective that allows for only ecological changes.

Presuppression - Activities organized in advance of fire occurrence to assure effective suppression action.

Primitive recreation - Those recreation activities which occur in areas characterized by an essentially unmodified natural environment of fairly large size.

Primitive roads - Roads constructed with no regard for grade control or designed drainage, sometimes by merely repeatedly driving over an area. These roads are single lane, usually with native surfacing and sometimes passable with four-wheel-drive vehicles only, especially in wet weather.

Productive Forest lands - Used under previous timber classification; Forest lands that are capable of producing crops of industrial wood and have not been reserved or deferred.

Production potential - The capability of the land or water to produce a given resource.

Program - When capitalized, the Renewable Resource Program required by the RPA. Generally, sets of activities or projects with specific objectives, defined in terms of specific results and responsibilities for accomplishment.

Program Budget - The fiscal planning document for estimating short- and long-range dollar needs by program area.

Program development and budgeting - The process by which activities for the Forest are proposed and funded.

Programmed harvest - The part of the potential yield that is scheduled for harvesting. It is based on current demand, funding, and multiple use considerations.

Project design - The process of developing specific information related to location, timing, activities, accountability, and control that result in the achievement of an objective or desired future condition.

Projects - Work schedule prescribed for a project area to accomplish management prescriptions. Projects can be for operation maintenance and protection (OMP) or for investment purposes. OMP projects are for ongoing work and are generally considered 1 year at a time. Investments can be of multiyear duration. A project is organized for managerial convenience, and is described by location, activities, outputs, effects, work force, dollars, time, and responsibility for execution.

Proper use criteria - The limiting factor or factors which will be measured on a particular site. It could be percent utilization of forage, percent ground cover, percent trampling damage, a measure of the allowable impact on other resources or uses, or any other measureable factor on a particular site.

Proposed action - In terms of the National Environmental Policy Act, the project, activity, or decision that a Federal agency intends to implement or undertake.

Public access - Usually refers to a road or trail route over which a public agency claims a right-of-way for public use.

Public issue - A subject or question of widespread public interest relating to management of the National Forest System.

Public participation - Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Quad maps - Standard U.S. Geological Survey quadrangle maps.

Range - Land producing native forage for animal consumption and lands that are revegetated naturally or artificially to provide forage cover that is managed like native vegetation.

Range allotment - An area designated for use of a prescribed number and kind of livestock under one management plan.

Range condition - The state of health of the range based on what it is naturally capable of producing.

Ranger District - Administrative subdivisions of the Forest supervised by a District Ranger who reports to the Forest Supervisor.

Raptor - Bird of prey with a strong notched beak and sharp talons, such as the eagle, hawk, owl, etc.

Real dollar value - A monetary value that compensates for the effects of inflation.

Record of Decision - A document separate from but associated with an Environmental Impact Statement that publicly and officially discloses the responsible official's decision on which alternative assessed in the Environmental Impact Statement to implement.

Recreation capacity - The number of people that can take advantage of the recreation opportunity at any one time without substantially diminishing the quality of the experience sought after.

Recreation experience level - A classification (using a 1 to 5 scale) of the level of development in camp and picnic sites as to the types of recreation opportunities and modifications to the environment that can be expected.

Recreation Information Management (RIM) - The Forest Service system for recording recreation facility condition and use.

Recreation management area - An area of several thousand acres where the management emphasis is on recreation and where there is direction given to establish a Recreation Area Management Plan.

Recreation opportunity - Availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired.

Recreation Opportunity Spectrum (ROS) - A method of measuring the ability of the Forest land to meet the various types of demands imposed by a variety of recreation uses. Provides a framework for defining types of outdoor recreation; expressed by three principal components - the activity opportunity, the setting opportunity, and the experience opportunity. ROS classes are Primitive, Semi-Primitive Nonmotorized, Semi-Primitive Motorized, Roaded Natural, Rural.

Recreation visitor day (RVD) - Twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more persons.

Reduced service management - Management of developed recreation facilities below optimum maintenance standards. The administration, operation, and maintenance of developed sites (except VIS) at a level below established standards and management objectives.

Reforestation - The natural or artificial restocking of an area with forest trees.

Regeneration - The renewal of a tree crop, whether by natural or artificial means. Also, the young crop itself, which commonly is referred to as reproduction.

Region - For Regional planning purposes, the standard administrative Region of the Forest Service, administered by the official responsible for preparing a Regional Guide.

Regional Forester - The official responsible for administering a single Region.

Regional Guide - The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given Region. It also disaggregates the RPA objectives assigned to the Region to the Forests within that Region.

Regulations - Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which covers management of the Forest Service.

Rehabilitation - A short-term management activity used to return visual impacts in the natural setting to a desired visual quality.

Removal cut (final cut) - The removal of the last seed bearers or shelter trees after regeneration is established under a shelterwood method.

Research Natural Areas - An area in as near a natural condition as possible which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and general public use is not allowed.

Residual stand - The trees remaining standing after some event such as selection cutting.

Resource allocation model - A mathematical model using linear programing which will assign land to prescriptions and schedule implementation of those prescriptions simultaneously. The purpose of the model is to find a schedule and assignment that meets the goals of the Forest and optimizes some objective function such as "minimize costs."

Resource element - A major Forest Service mission-oriented endeavor which fulfills statutory or executive requirements and compromises a collection of activities from the various operating programs required to accomplish the mission. The eight resource elements are: recreation, wilderness, wildlife and fish, range, timber, water, minerals, and human and community development.

Resource Management Plan - A Plan developed prior to the Forest Plan that outlines the activities and projects for a particular resource element independently of considerations for other resources. Such Plans are superseded by the Forest Plan.

Resource Value Rating - Measure of range condition based composite rating of vegetations and soils.

Responsible official - The Forest Service employee who has been delegated the authority to carry out a specific planning action.

Retention - A visual quality objective; a condition in which man's activities are not evident to the casual forest visitor.

Right-of-way - An accurately located strip of land with defined width, point of beginning, and point of ending; the area within which the user has authority to conduct operations approved or granted by the landowner in an authorizing document, such as a permit, easement, lease, license, or Memorandum of Understanding.

Riparian - Areas of land that are directly influenced by water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

Riparian Area Dependent Resource - These are resources that owe their existance to the Riparian Area.

Riparian Area - Geographically delineated areas, with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems, floodplains, and wetlands. They include all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies.

Riparian ecosystems - A transition between the acquatic ecosystem and the adjacent upland terrestrial ecosystem and is identified by soil characteristics and distinctive vegetation communities that require free or unbounded water.

Road - A general term denoting a way for purposes of travel by vehicles greater than 40 inches in width.

Road impact rating - A subjective rating of road use intensity and "out-of-the-vehicle" human activity involved in a compartment.

a. Low Impact Road - Generally less than 10 vehicles per week and/or little "out-of-the-vehicle" human activity involved.
b. Moderate Impact Road - Between 10 and 30 vehicles per week and/or moderate "out-of-the-vehicle" human activity involved.
c. High Impact Road - Greater than 30 vehicles per week and/or moderate "out-of-the-vehicle" human activity involved.

Road maintenance levels - Levels are described as follows:

Level 1. Road normally closed to vehicle traffic.
Level 2. Road open for limited passage of traffic but not normally suitable for passenger cars.
Level 3. Road open for public traffic including passenger cars, but may not be smooth or comfortable.
Level 4. Road suitable for all types of vehicles, generally smooth to travel, and dust may be controlled.
Level 5. Road is smooth and dust free, and the surface is skid resistant if paved.

Roaded Natural - A classification of the recreation opportunity spectrum that characterizes a predominately natural environment with evidence of moderate permanent alternate resources and resource utilization. Evidence of the sights and sounds of man is moderate, but in harmony with the natural environment. Opportunities exist for both social interaction and moderate isolation from sights and sounds of man.

Roadless Area Review and Evaluation II (RARE II) - The national inventory of roadless and undeveloped areas within the National Forest and Grasslands. This refers to the second such assessment, which was documented in the Final Environmental Impact Statement of the Roadless Area Review and Evaluation, January 1979.

Rotation - The planned number of years between the formation of a regeneration of trees and its final cutting at a specified stage of maturity.

Roundwood - Timber and fuelwood prepared in the round state--from felled trees to material trimmed, barked, and crosscut (logs, transmission poles, etc.).

Rural - A recreation opportunity spectrum classification for areas characterized by a substantially modified natural environment. Sights and sounds of man are evident. Renewable resource modification and utilization practices enhance specific recreation activities or provide soil and vegetative cover protection.

Sale schedule - The quantity of timber planned for sale by time period from an area of suitable land covered by a Forest Plan. The first period, usually a decade, of the selected sale schedule provides the allowable sale quantity. Future periods are shown to establish that long-term sustained yield will be achieved and maintained.

Salvage cutting - The exploitation of trees that are dead, dying, or deteriorating because they are overmature or have been materially damaged by fire, wind, insects, fungi, or other injurious agencies, before their timber becomes worthless.

Sanitation cutting - The removal of dead, damaged, or susceptible trees, done primarily to prevent the spread of pests or pathogens and so promote Forest hygiene.

Satisfactory Range Condition - Land that has a resource value rating of 50 or above, or being in a moderate or ecological status and having a stable or upward trend.

Sawtimber - Live trees that equal or exceed the minimum utilization standard for sawtimber.

Scenic areas - Places of outstanding or matchless beauty which require special management to preserve these qualities. They may be established under 36 CFR 294.1 whenever lands possessing outstanding or unique natural beauty warrant this classification.

Scenic easement - An interest in the land of another which allows the easement holder specified uses or rights without actual ownership of the land. In many cases, a scenic easement provides control of the use of land adjacent to public highways, parks, and rivers.

Scoping process - The public land management activities used to determine the range of actions, alternatives, and impacts to be considered in an Environmental Impact Statement.

Second growth - Forest growth that has become established after some interference with the previous Forest crop; e.g., cutting, serious fire, or insect attack.

Security area - Habitat which, because of its size, topography, vegetation, and limited access, is capable of holding elk during periods of stress, particularly during the big-game hunting season.

Sediment - Any material transported, suspended, or deposited by water.

Seed tree cutting - Removal in one cut of the mature timber crop from an area, except for a small number of seed bearers left singly or in small groups.

Seedlings and saplings - Live trees less than 5 inches in diameter at breast height.

Selection cutting - The annual or periodic removal of trees (particularly mature trees), individually or in small groups, from an uneven-aged forest, to realize the yield and establish a new crop or irregular constitution.

Semi-primitive motorized - A classification of the recreation opportunity spectrum characterized by a predominantly unmodified natural environment in a location that provides good to moderate isolation from sights and sounds of man except for facilities/travel routes sufficient to support motorized recreational travel opportunities which present at least moderate challenge, risk, and a high degree of skill testing.

Semi-primitive nonmotorized - A classification of the recreation opportunity spectrum characterized by a predominately unmodified natural environment of a size and location that provides a good to moderate opportunity for isolation from sights and sounds of man. The area is large enough to permit overnight foot travel within the area and presents opportunity for interaction with the natural environment with moderate challenge, risk, and use of a high degree of outdoor skills.

Sensitive species - Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations.

Sensitivity analysis - A determination of the effects of varying the level of one or more factors, while holding the other factors constant.

Sensitivity level - A particular degree of measure of viewer interest in scenic qualities of the landscape. Three sensitivity levels are employed, each identifying a different level of user concern for the visual environment.
Level 1 - Highest sensitivity
Level 2 - Average sensitivity
Level 3 - Lowest sensitivity

Shade-intolerant plants - Plant species that do not germinate or grow well in the shade.

Shade-tolerant plants - Plants that grow well in shade.

Shelterwood - The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting, though it may be preceded by a preparatory cutting, and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-aged stand results.

Seral condition - The unique characteristics of a biotic community which is a developmental, transitory stage in an orderly ecologic succession involving changes in species, structure, and community processes with time.

Shrub/seedling - A Forest successional stage in which shrubs and seedling trees are the dominant vegetation.

Sight distance - The distance at which 90 percent or more of a deer or elk is hidden from an observer. Hiding cover exists when 90 percent or more of a standing deer or elk is hidden at a distance of 200 feet or less.

Silvicultural examination - The process used to gather the detailed in-place field data needed to determine management opportunities and direction for the timber resource within a small subdivision of a Forest area such as a stand.

Silvicultural system - A management process whereby Forests are tended, harvested, and replaced, resulting in a Forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of Forest thereby produced.

Single-tree selection - See "Individual (single) tree selection."

Site index - A numerical evaluation of the quality of land for plant productivity.

Site preparation - A general term for removing unwanted vegetation, slash, roots and stones from a site before reforestation.

Site productivity - Production capability of specific areas of land.

Size class - For the purposes of Forest planning, size class refers to the intervals of tree stem diameter used for classification of timber in the Forest Plan data base.
- less than 5-inch diameter = seedling/sapling
- greater than 7-inch diameter = sawtimber

Skidding - A loose term for hauling loads by sliding, not on wheels, as developed originally from stump to roadside, deck, skidway, or other landing.

Slash - The residue left on the ground after timber cutting and/or accumulating there as a result of storm, fire, or othr damage. It includes unused logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

Small game - Birds and small mammals normally hunted or trapped.

Snag - A nonliving standing tree. The interior of the snag may be sound or rotted.

Social analysis - a phase in the Forest planning process which (1) identifies groups (whether formally organized or not) which may be affected by or have an interest in planning decisions; (2) gathers and quantifies (objectively when possible) both the preferences of these groups and the possible effects of proposed alternatives on these groups; (3) evaluates the role of social group preferences and consequences in resource assignment decisions; and (4) determines how a given plan should be formulated (or adjusted) to respond to these evalutions.

Society of American Foresters (SAF) forest and cover types - A forest type is a descriptive term used to group stands of similar character in regards to composition and development due to given ecological factors, by which they may be differentiated from other groups of stands. The term suggests repetition of the same character under similar conditions. A cover type is a forest type now occupying the ground, no implication being conveyed as to whether it is temporary or permanent.

Soil disturbance - The mechanical movement of the top layer of soil downslope as a result of livestock grazing. The movement of this layer of soil not only results in a net loss of topsoil but is very damaging to the plants and ground cover. Damage to the plants is characterized by burying, exposure of roots, uprooting seedlings and young plants, and breaking of the tough surface shield made up of roots and organic matter that gives the site its stability under pristine conditions.

Soil productivity - The capacity of a soil to produce a specific crop such as fiber, forage, etc., under defined levels of management. Productivity is generally dependent on available soil moisture and nutrients and length of growing season.

Soil resource commitment (total and/or essentially total) - A conversion of a productive site to an essentially nonproductive site for a period of more than 50 years. Inadequately restored haul roads, truck roads, landing areas as well as higher standard roads (system or nonsystem), and some stock driveways generally represent an essentially total commitment of the soil resource. Productivity on these areas ranges from 0 to 40% of natural.

Soil surveys - Systematic examinations of soils in the field and in laboratories; such examinations are at differing "orders" and interpretation according to their adaptability for various crops, grasses, and trees; there are five classed orders of surveys, with order 1 being the highest intensity.

Soil Loss Tolerence - Maximum rate of soil erosion that will still permit the maintenance of vegetative productivity to be sustained indefinitely.

Sound wood - Timber that is free from defect, damage, or decay; i.e., in solid, whole, good condition.

Special Use Pastures - Areas of National Forest System land which cannot be logically managed as a grazing allotment or as part of an allotment because of location, size, adjacent ownership, or topography. They provide grazing or holding areas for livestock and may be made available for grazing use at the convenience of the permittee. Special use pastures are usually fenced and may be improved or unimproved. Pastures may be seeded to high quality native or introduced forage species and undesirable species may be controlled by various means.

Special Use Permit - A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest land for some special purpose.

Spring break-up - The time of year when roads break up due to melting frost and ice, generally from the first of March to the middle of April.

Stand (tree stand) - An aggregation of trees or other vegetation occupying a specific area and sufficiently uniform in composition (species), age arrangement, and condition as to be distinguishable from the Forest or other vegetation or other land cover on adjoining areas.

Stand examination surveys - Procedures consisting of seven types of surveys used to collect data on Forest stands. Types 1 through 4 are conducted by using intensive specified standard procoedures. Types 5 through 7 are less intensive examinations consisting of modifications to procedures used in Type 1 through 4 surveys.

Stand size class - A classification of forest land based on the predominant size of trees present; that is, sawtimber, poletimber, seedling-sapling.

Standard and Guideline - Principles specifying conditions or levels to be achieved.

State Air Quality Regulations - The legal base for control of air pollution sources in that state. Prescribed burning is generally covered under these regulations.

State Implementation Plan - A State Plan that covers implementation, maintenance, and enforcement of primary and secondary standards in each air quality control region, pursuant to Section 110 of the Clean Air Act.

Strategic minerals - Those minerals of which the U.S. imports 50 percent of more from foreign sources (based on 1978 U.S. Bureau of Mines figures).

Stratification - A land use planning concept which subdivides a study area into units which contain the same characteristics.

Stream - A water course having a distinct natural bed and banks; a permanent source which provides water at least periodically; and at least periodic or seasonal flows at times when other recognized streams in the same area are flowing.

Successional stage - A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax; for example, coniferous forests commonly progress through six recognized stages: grass-forb; shrub-seedling; pole-sapling; young; mature; old growth.

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit land may be suitable for a variety of individual or combined management practices. See also "Timber classification."

Suitability analysis - Process of identifying lands to be managed for timber production. Stage 1 identifies the biologically capable, administratively available, and technically suitable lands. Stage II consists of an economic analysis of costs and benefits of timber management on the lands identified in Stage I. Stage III provides the final assignment of suitable lands based on Forest objectives and economic efficiency. Stages II and III are completed with the FORPLAN model.

Suitable Forest land - Lands assigned to timber management as a result of the three-stage suitability analysis.

Supply - A schedule of the quantity of a product or Forest output that will be produced at various prices.

Supply potential - The output production possible from the available resources.

Suppression - An act extinguishing or confining fire.

Surface resources - Renewable resources located on the earth's surface in contrast to ground water and mineral resources located below the earth's surface.

Sustained yield of products and services - The achievement of maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest without impairment of the productivity of the land.

Targets - A quantifiable output. Assignments made to the Forest by the Regional Forester.

Technically suitable Forest land - Land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions. There is reasonable asurance that such lands can be adequately restocked as provided in 36 CFR 219.13 (h)(3).

Temporary road - A road that will be physically obliterated and seeded after its primary use is completed; i.e., spur road for logging.

Thermal cover - Cover used by animals to ameliorate effects of weather; for elk, a stand of coniferous trees 40 feet or taller with an average crown closure or 70 percent or more.

Thinning - A felling made in an immature stand primarily to maintain or accelerate diameter increment and also to improve the average form of the remaining trees without permanently breaking the canopy. An intermediate cutting.

Threatened species - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future.

Tiering - Refers to the coverage of general matters in broader Environmental Impact Statments (such as National program or policy statements) with subsequent narrower statements or environmental analyses (such as Regional or Basin-wide program statements or ultimately site-specific statements) incorporating, by reference, the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.

Timber base - The lands within the Forest capable, available, and suitable for timber production.

Timber harvest schedule - See "Sale schedule."

Timber production - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use. For purposes of Forest planning, the term "timber production" does not include production of fuelwood or harvest of unsuitable lands.

Timber stand improvement (TSI) - Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing condition of the remaining trees.

Tractor logging - Any logging method which uses a tractor as the motive power for transporting logs from the stumps to a collecting point--whether by dragging or carrying the logs.

Tradeoff Evaluation Process (TEP) - A process whereby factors, issues, elements, etc., are evaluated with regard to the tradeoffs that would occur.

Trail maintenance level - One of the categories outlined in the Management Information Handbook describing the type and intensity of maintenance for trails.

Transitory range - Land that is suitable for grazing use of a nonenduring nature over a period of time. For example, on particularly disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

Travel management - The administrative decisions on the location and timing of road and trail closures.

Treatment area - The site-specific location of a resource improvement activity.

Tree opening - An opening in the forest cover created by the application of even-aged silvicultural practices.

Type conversion - The conversion of the dominant vegetation in an area from forested to nonforested or from one tree species to another.

Understory - The trees and other woody species growing under a more-or-less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth.

Uneven-aged management - The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single tree selection and group selection.

Uneven-aged silviculture systems - The combination of action that results in the creation of forests or stands of trees, in which trees of several or many ages grow together. Cutting methods that develop and maintain uneven-aged stands are individual tree and group selecting cutting methods:

Individual tree selection cutting. The removal of selected trees of all size classes on an indiviudal basis.

Group selection cutting. The removal of selected trees of all size classes in groups of a fraction or an acre up to two or three acres in size.

Unpatented mining claim - See "Mining claim."

Unplanned ignition - A fire started at random by either natural or human causes, or a deliberate incendiary fire.

Unregulated harvest - This harvest is not charged against the allowable sale quantity, and includes occasional volumes removed that were not recognized in calculations of the allowable sale quantity, such as cull or dead material and noncommercial species and products. It also includes all volume removed from nonsuitable areas. Harvests from nonsuitable areas will be programed as needed for objectives such as research on experimental Forests, to meet multiple use objectives other than timber production, and for improvement of administrative sites.

Unsuitable forest lands - Forest land that is not managed for timber production because: (1) the land has been withdrawn by Congress, the Secretary of Agriculture, or Chief of the Forest Service; (2) technology is not available to prevent irreversible damage to soils, productivity, or watershed conditions; (3) there is no reasonable assurance that lands can be adequately restocked within five years after final harvest based on existing technology and knowledge; (4) there is presently a lack of adequate information or responses to timber management activities; or (5) timber management is inconsistent with or not cost-efficient in meeting the management requirements and multiple-use objectives specified in the Forest Plan.

Utilization standards - Standards guiding the projection of timber yields and the use and removal of timber. The standards are described in terms of minimum diameter at breast height, minimum length, and percent soundness of the wood, as appropriate.

Variety class - A classification system for establishing three visual landscape categories according to the relative importance of the visual features. This classification system is based on the premise that all landscapes have some visual values, but those with the most variety or diversity of visual featres have the greatest potential for high scenic value.

Vegetative management - Activities designed primarily to promote the health of the Forest cover for multiple-use purposes.

Vertical diversity - The diversity in a stand that results from the complexity of the above-ground structure of the vegetation; the more tiers of vegetation.

Visual absorption capability - The ability of the landscape to conceal evidence of human modifications. Rated as high, moderate, and low.

Viable populations - A number of individuals of a species sufficient to ensure the long-term existence of the species in natural self-sustaining populations adequately distributed throughout their region.

Visitor Information Service (VIS) - Activities which interpret for visitors, in layman's language, Forest management, protection, utilization, and research. It also includes interpreting the local botany, geology, ecology, zoology, history, and archaeology.

Visual quality objective (VQO) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural appearing landscape.

-- Retention (R) - Ecological change only here.

-- Partial Retention (PR) - Human activities should not be evident to the casual Forest visitor.

-- Modification (M) - Human activity may dominate the characteristic landscape but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.

-- Maximum Modification (MM) - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

-- Enhancement - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visual resource - The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Water rights - Rights to divert and use water or to use it in place.

Water yield - The measured output of the Forest's streams.

Water yield increase - Additional water released to the Forest streams as a result of Forest management activities.

Watershed - The entire area that contributes water to a drainage system or stream.

Wetlands - Areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wilderness - Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint of man's activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; include at least 5,000 acres or is of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Under the current management situation, roadless areas will be handled in the Forest Plan as follows:

1. Nonwilderness roadless areas - On February 1, 1983, the Secretary of Agriculture made a decision to reevaluate RARE II roadless areas as a result of the Ninth Circuit Court of Appeals decision in California v. Block. Pending any legislative changes, the reevaluation will be conducted during the Forest land and resource management planning process and will include, in addition to further planning areas, roadless areas recommended for wilderness in RARE II and areas that were administratively designated for nonwilderness uses. Activities in nonwilderness areas will continue under existing Plans, pending completion of the Forest Plans.

2. Wilderness and primitive areas - These areas will be managed to protect their wilderness characteristics as provided for through the Wilderness Act of 1964 and subsequent designating legislation.

3. Recommended wilderness - These areas have already been recommended as suitable for inclusion as wilderness areas through the RARE II process but will be reevaluated in Forest planning. These areas may be considered for designation by Congress prior to completion of the Forest Plans.

4. Further planning areas - These areas will be considered for wilderness or nonwilderness during the development of Forest Land and Resource Management Plans. Decisions on the suitability or unsuitability of the areas for wilderness designation will be made in the Forest Plan. Suitable areas will be recommended to Congress for inclusion in the National Wilderness Preservation System. (The matter goes before Congress for final decision.) If not found suitable, Congress will be notified by letter of a decision of unsuitability in the Forest Plan. A 90-day waiting period is necessary while Congress is in session before a decision of unsuitability can be implemented.

Interim management direction for recommended wilderness and further planning areas protects their wilderness characteristics until the final decisions are made. The areas are not available for timber harvest, road construction, or other activities that reduce wilderness potential. Entry into the areas for the exploration, development, and production of minerals is permitted under the 1872 mining laws. Mineral leasing in further planning areas includes a stipulation that requires a sequential review and approval of operations. This requires confirmation that succeeding operations are warranted by information collected in the preceding stage.

Wildfire - Any wildland fire that is not a prescribed fire.

Wildlife habitat diversity - The distribution and abundance of different plant and animal communities and species within a specific area.

Wildlife habitat effectiveness - The character of locations where wildlife are not disturbed by human activities.

Window - A critical segment of terrain through which right-of-way could pass in traversing from point of origin to destination.

Withdrawal - An order removing specific land areas from availability for certain uses.

Wood fiber production - The growing, tending, harvesting, and regeneration of harvestable trees.

Work center - A facility where crews assemble and are directed toward their various work assignments. A work center can be located at an administrative site. A work center normally will include storage and warehousing facilities and may include crew housing.

Xeric - A soil moisture regime common to climates that have moist, cool winters and warm, dry summers. Some moisture is present but does not occur at optimum levels for plant growth. Irrigation or summer fallow is often necessary for crop production.

Yarding - Hauling timber from the stump to a collection point.

Year-round economies - Economies based on employees working year-round as opposed to seasonal employment.

Zone of influence (ZOI) - The area influenced by Forest Service management activities.

VIII. INDEX

Adverse effects, unavoidable .

Air quality ....

Alternatives:
    --Comparison of ....
    --Considered in detail ..
    --Evaluated but not consi
    --How formulated ....
    --Preferred alternative (

Analysis of the Management Sit

Benchmarks ....

Corridors ....

Cultural resources...........

Diversity..................II

Economics...................

Employment..................

Energy requirements ....

Environment(al):
    --Consequences of each al
    --Social ....

Facilities..................I

Fire management.............

Fish........................

Floodplains.................

Fuelwood....................

Insects and diseases.........

Issues......................

Lands and landownership.......

INDEX

.... IV-(100-104)

....................................III-44,IV-(6,94)

....................................II-(125-172)

....................................II-(17-124)

ered in detail II-15

....................................II-(2,3)

roposed action) II-76

ation ....II-(1,12)

....................................I-8,II-(2,4-14)

....................I-8,III-(24,36,41),IV-(9,11)

.....III-8,IV-(13,20,26,33,40,47,54,61,68,75)

-(31,32,47),IV-(8,17,24,31,38,45,52,59,63,70)

....................................II-(1,173)

....................................III-54,IV-(7,11)

....................................IV-98

ernative ....IV-(13-71)

....................................IV-(72-89)

I-(5,19,39),IV-(13,20,27,34,41,48,54,61,68)

.....III-43,IV-(19,26,33,40,47,54,61,68,75)

..........................I-(2,8),III-(31,32)

...II-(23,35,47,59,71,83,95,107,119),IV-105

..........................III-(15,16,42,44,47)

..........................III-(45,47),IV-(8,11)

...............I-(1,3-5),II-(2,4), III-(1,25)

.....III-36,IV-(15,23,30,37,44,51,58,65,73)

Livestock.....................................I-7,III-(2,20,22,45,51)

Management indicator species.................................III-(24,25)

Minerals.......I-(1,2,8),III-(12,32,33,38),IV-(18,25,33,40,47,54,61,68,75)

Minority groups...............III-(49,53),IV-(72,74,76,78,80,82,84,86,88)

Monitoring ....I-4,III-(20,38,44),IV-1

National Environmental Policy Act (NEPA) I-1,II-2

National Forest Management Act (NFMA) I-1,II-2

Old-growth................III-(15,27,32),IV-(17,24,31,38,45,52,59,62,70)

Planning record I-8,II-15

Prescribed fire ....III-(44,45)

Public........................I-(1-4,7),III-4,5,19,32,36,37,43,45,52,54)

Range.I-(2,3),II-(24,36,48,60,72,84,96,108,120),III-(20-22),IV-(16,23,30)
IV-(37,44,51,58,65,73)

Recreation, developed.II-(22,34,46,58,70,82,94,106,118),III-(4,5),IV-(13)
IV-(20,27,34,41,48,54,61,68)

Recreation, dispersed.II-(22,34,46,58,70,82,94,106,118),III-(4,5),IV-(13)
IV-(20,27,34,41,48,54,61,68)

Resources Planning Act (RPA) ....I-(1,2)

Riparian management.......I-(23,35,47,59,71,83,95,107,119),III-(34,37,39)
IV-(13,20,27,34,41,48,54,61,68)

Roads.III-(34,37,39),IV-(14,21,28,35,43,50,57,64,71)

Snags III-27

Soils....................III-(10,37,38),IV-(16,23,30,37,44,51,58,65,73)

Suitability, range ...II-(24,36,48,60,72,84,96,108,120),IV-(16,23,30,37)
...IV-(45,57,69,81,92)

Suitability, timber...II-(23,35,47,59,71,83,95,107,119),IV-(14,21,28,35)
...IV-(43,50,57,64,71)

Threatened and Endangered species IV-9

Timber.....I-(2,5,7),II-(23,35,47,59,71,83,95,107,119),III-(2,12-21,32)
.....IV-(14,21,28,35,43,50,57,64,71)

Visual quality.................III-11,IV-(13,20,27,24,41,48,54,61,68)

Water...I-(1,2,7),III-17,IV-12

Wetlands...........................II-(23,35,47,59,71,83,95,107,119)

Wild and Scenic rivers, potential.III-8,II-(22,34,46,58,70,82,94,106,118)

Wilderness...III-(10,11)

Wildlife........I-(2,5,7,8),III-(23-32),IV-(17,24,31,38,45,53,60,67,74)

IX. REFERENCES

Airola D., and Shimamoto K. (ed). 1981. Fish and Wildlife Habitat Capability Model and Special Habitat Criteria for the Northeast Zone National Forests. USDA Forest Service. Lassen, Mendocino, Modoc and Plumas National Forest. 260 p.

Airola D., 1981. California Wildlife Habitat Relationships Program Northeast Interior Zone. Volume II-Reptiles and Amphibians, Volume III-Birds, and Volume IV-Minerals, USDA Forest Service.

American Fisheries Society 1980. Position paper on Management and protection of Western Riparian Stream Ecosystems.

American Fisheries Society 1981. The Best Management practices for the management and protections of Western Riparian Stream Ecosystems.

Artz, John L. (Chairman), Range Inventory Standardarization Committee. 1984. Guidelines and Terminology for Range Inventories and Monitoring. Report of the Range Inventory Standarization Committee, Society for Range Management, presented to the Board of Directors of SRM, Albuquerque, New Mexico, February, 1983. 13 p.

Behnke R. L. and Raleigh R.F.Grazing and Riparian Zone: Impact and management perspectives.

Berg N.A.., Kattlemenn R.C., Rector J. 1983. The potential for Increasing Streamflow from Sierra Nevada Watersheds. Water Resource Bulletin Vol. 19, and No. 3.

BLM 1982. Cultural Resource Survey: General Guidelines. Nevada State Office, BLM. Reno, Nevada.

Brooks, Richard H., Robert D. York, William C. Massey. 1972. Archaeological research of the Las Vegas Ranger District, Toiyabe National Forest, Las Vegas, Nevada. Nevada Archaeological Survey. University of Nevada, Las Vegas.

Buckhouse J.C. 1981.Riparian Response to certain Grazing Management.

Bull, E. L., 1977. Flammulated Owls. The Murrelets. Spring, 1978, pages 27-28.

California Department of Parks and Recreation. 1975. California State Comprehensive Outdoor Recreation Plan.

California Department of Parks and Recreation. May 1983. Statewide Off-Highway Motor Vehicle Recreational Trails Plan.

California Department of Water Resources 1971. California Streamflow Characteristics Volume No. 2: Northern Great Basin and Central Valley Open - File Report.

California State Water Resource Control Board. 1975 Water Quality Control plan Report (and ammendments). Lahontan Region.

Carothers, S. W., 1977. Importance, Prevention, and Management of Riparian

Habitat. Pages 2 - 4 in R.R. Johnson and D.A. Jones, (Tech. Coord.) Importance, Preservation, and Management of Riparian Habitat: a symposium, U.S. Dept. of Agriculture, Forest Service, Gen. Tech, Rep. RM-34.

Carson River Basin Council of Governments. June 1974. A Plan for Parks, Recreation, and Open Space.

Cooper J.L. 1979. A Management Technique for Evaluating and predicting the Impact of Grazing on Stream Channels.

Davis G. and Bruce M.E. 1981. Presentation at Wildlife - Livestock Relationships Symposium. Livestock Management practices for Aquatic Habitat protection on Western Rangeland.

Forest Service, Fire Management Analysis and no date. Planning Handbook, FSH 5109.19.

Gifford G.F. and Hawkins R.H. Hydrologic Impact of Grazig - A critical review (unpublished).

Handbook 2500-Watershed management.

Interdepartmental Committee on Scenic Highqways, State of California. The Scenic Routes.

Leopold, A., 1961. Game Management. Charles Scribner's Sons, New York and London, 481 pp.

Linebaough, J. (Chairman), Nevada Range Studies Task Group. 1984. Nevada Rangeland Monitoring Handbook. Cooperative HB ARS, BLM, FS, SCS, Univ. of Nevada Reno, and Nevada Tange Consultants, presented to John L. Artz, Chairman, Nevada Range Committee, October 1984, Univ. Nevada, Reno. 50 p.

Lyneis, Margaret M., Coordinator 1982. An archaeological element for the Nevada Historic Preservation Plan. Nevada Division of Historic Preservation and Archeology, project no. 230-0580 Carson City, Nevada.

Nevada State Department of Conservation and Natural Resource, Division of Environmental Protection 1978. Water Quality Management plan (208) Non-designated Area of Nevada.

Nevada State Department of Conservation and Natural Resource, Division of Environmental Protection. 1980. Regulation for Control of water pollution from Diffuse Sources.

Nevada State Department of Conservation and Natural Resources. 1980. Winter Recreation in Nevada.

Nevada Department of Human Resources, Bureau of Environmental Health, 1979 water pollution Control Regulations.

Nevada Division of State Parks. Berlin-Ichthyosaur State Park General Development Plan.

Nevada Division of State Parks. 1977. Statewide Comprehensive Outdoor Recreation Plan.

Nevada Division of State Parks. 1978. Nevada State-Wide Trails Study.

Nevada Division of State Parks. 1978. State Park Roles Study.

1983, Mills Thomas J., Integrating Fire Management Analysis into Land Management Planning. Pacific S.W. For and Range Exp. Sta. Gen. Tech. Report PSW-74.

Pendeton, Lorann S.A., Alvin R. McLane, David Hurst Thomas. 1982 Cultural Resource Overview, Carson City District, West Central Nevada. Cultural Resource Series No. 5:1 and 2. Nevada State Office, BLM. Reno, Nevada.

Pippin, Lonnie C. 1980. Prehistoric and historic patterns of lower pinyon-juniper woodland ecotone exploitation at Borealis, Mineral County, Nevada. Technical Report Series No. 17. Desert Research Institute. Reno, Nevada.

Platts, W.S. 1978. Livestock Interactions with Fish and Aquatic Environments: problems in Evaluation.

Price, John Andrew. 1962. Washoe economy. Nevada State Museum of Anthropological Papers, No. 6. Carson City, Nevada.

Range Management Notes. May 1981.

Raphael, M.G. & M. White, 1976. Avian Utilization of Snags in a Northern California Coniferous Forest. (Phases 1 and 11). Presented to the U.S.F.S. Region 5, Regional Office, San Francisco, Wildlife and Fisheries. Preliminary Report.

Scott, V.E., and D. R. Patton, 1975. Cavity-Nesting Birds of Arizona and New Mexico Forest. U.S.F.S., Gen. Tech. Report 10. Rocky Mountain Forest and Range Experimental Station.

Scott, V.E., 1978. Characteristics of Ponderosa Pine Snags Used by Cavity-Nesting Birds in Arizona. Journal of Forestry, January, pages 27 -28.

Stanislaus Timber Yields - RAMPREP. Stanislaus National Forest, 19777 Greenley Road, Sonora, California.

Steward, Julian H. 1938. Basin-Plateau aborginal sociopolitical groups. Bureau of American Ethonology Bulletin 120.

Tahoe Timber Yields - RAMPREP. Tahoe National Forest, Highway 49 and Coyote St., Nevada City, Californit.

Taylor D. Wm. 1982.Riparian Vegetation of the Eastern Sierra: Ecological effects of Stream Divisions.

Terminology of Forest Service, Technology Practice & Products - SAF - 1971.

Thomas, David Hurst. 1982. The 1981 Altat Toquima Village Project: a preliminary report. Social Sciences Center Technical Report Serrice No. 27. Desert Research Institute, Reno, Nevada. American Museum of Natural History, New York.

Thomas, David Hurst. 1982. The archaeoloy of Monitor Valley. Anthropological Papers of the American Museum of Naturaly History. New York.

Thomas, Jack Ward (Ed.) 1979. Wildlife Habitats in Managed Forests, The Blue Mountains of Oregon and Washington. U.S.D.A. Forest Service Washington, D.C. 512 pp.

Toiyabe pre-inventory stratification. Odgen, Utah. Regional Office. Forest Service, U.S. Department of Agriculture.

Toiyabe Timber Management Plan. Toiyabe National Forest, 1200 Franklin Way, Sparks, Nevada.

Trout Unlimited 1979. Proceedings of the Forum - Grazing and Riparian/Stream Ecosystems.

U.S.D.A. Forest Service, Analysis of the Management Situation on the Toiyabe National Forest; Toiyabe National Forest, Sparks, Nevada 89431.

U.S.D.A. Forest Service. Draft AMS from Forests in Region 4.

U.S.D.A. Forest Service. Forest Service Handbook 2308.22 R-8 - Landscape Management.

U.S.D.A. Forest Service. Forest Service Handbooks 7109.

U.S.D.A. Forest Service. Forest Service Handbook 7709.11 - Transportation Engineering Handbook, Chapter 24.

U.S.D.A. Forest Service. Forest Service Manual

U.S.D.A. Forest Service. Forest Service Manual 2300 - Recreation Management.

U.S.D.A. Forest Service. Forest Service Manual/Handbook 2400 - Timber Management.

U.S.D.A. Forest Service. Forest Service Manual 7700 - Transportation System.

U.S.D.A. Forest Service. Forest Service Manual/Handbook 2600 - Wildlife Management.

U.S.D.A. Forest Service. 1979. Final Enviromental Statement (78-04) -- Roadless Area Review and Evaluation (RARE II); U.S. Forest Service Service, Washington, D.C.; January, 1979.

U.S.D.A. Forest Service. 1980. Fish and Wildlife Management, 1922.33. In Forest Service Manual 1920 - Land and Resource Management Planning, Interim Directive No. 6, March 10.

U.S.D.A. Forest Service. 1980. *Wildlife Habitat Management Handbook*, 2609.23R Chapter 400 Management by Featured Species.

U.S.D.A. Forest Service. ROS Users Guide.

U.S.D.A. Forest Service. 1972. Las Vegas District Recreation Campsite Plan.

U.S.D.A. Forest Service. 1972. Kingston-Austin Recreation Campsite Plan.

U.S.D.A. Forest Service. 1976. Hoover Wilderness Management Plan.

U.S.D.A. Forest Service. 1979. RARE II Final Environmental Statement.

U.S.D.A. Forest Service. 1980. Toiyabe National Forest Trail Management Plan.

U.S.D.A. Forest Service. 1981. Geology and Mineral Resources of the Toiyabe National Forest.

U.S.D.A. Forest Service. Multiple Use Plans, Bridgeport, and Reno-Carson.

U.S.D.A. Forest Service. National Forest Landscape Management, Vol. 1 and 2.

U.S.D.A. Forest Service. Toiyabe National Forest Recreation Information Management Report.

U.S.D.A. Forest Service. Toiyabe National Forest Unit Plan, Mt. Charleston, Central Nevada, Alpine and Truckee-Little Truckee.

U.S.D.A. Forest Service. 1983. Range Analysis Handbook. FS HB No. 2209.21. U.S. Dept. of Agric., FS, Intermountain Region, R-4, Odgen, Utah.

U.S.D.A. Forest Service. All Unit plans and M.U. plans.

U.S.D.A. Forest Service Handbook (all)

U.S.D.A. Forest Service Manuals 2500, 2400 -----

U.S.D.A. Forest Service. 1975. Water and Related land Resource for the Central Lahontan Basin.

U.S.D.A. Forest Service 1978. Proceedings of the Symposium - Strategies for protection and management of Floodplain wetlands and other Riparian Ecosystem.

U.S.D.A. Forest Service 1979, Guidelines for Water Resource Inventories.

U.S.D.A. Forest Service. 1979. Procedural Guidelines for Watershed Condition Inventories.

U.S.D.A. Forest Service. 1979. Technical Guide. Erosion Prevention and Control on Timber Sale Areas

U.S.D.A. Forest Service 1979 Water Quality Management for National Forest System Lands in California (208 plan).

U.S.D.A. Forest Service. 1980. Technical Guide for preparing Water Quality Monitoring Plans.

U.S.D.A. Forest Service. 1981 Guide for predicting Sediment yields from Forested Watersheds

U.S.D.A. Forest Service, Tioyabe National Forest Various Cultural Resource project and site files. Supervisor's Office. Sparks, Nevada.

U.S.D.A. Soil Survey
Washoe County NV. North and South part
Douglas County NV
Mineral County NV. (interium)
Lyon County NV.
Mineral County NV.
Carson City NV.
Alpine County Calif. (unpublished)
Mono County Calif. (unpublished)
Tahoe National Forest - Toiyabe National Forest portion (unpublished)

U.S.D.I. Bureau of Land Management 1979. Livestock Grazing Managemet and Water Quality protection.

U.S.D.I. Geological Survey Water Resource Data for California

U.S.D.I. Geological Survey Water Resource Date for Nevada

U.S.D.I. Geological Survey. 1978. Nevada Streamflow Characteristics Water Resource - Information Series Report 28.

U.S.D.I. Forest Service 1977. Fish Migration and Fish passage A practical Guide to Solving Fish passage problem

U.S.D.I. 1970. Recreation Space Standards. Department of the Interior, Bureau of Outdoor Recreation. Reprinted March, 1970.

Verschoor, Rudy J. Evaluating the 90% of LARSY grouth constraint in forest planning. Bridger-Teton National Forest, P.O. Box 1888, Jackson Wyoming.

White, L. and N. Morrissey, 1978. Unpublished report of Wildlife Investigations on the Mono Lake Ranger District, Inyo N.F. on file at the Mono Lake Ranger Station.

White, M. and M. Raphael, 1976. Forest Service Memo 1020 Laws, Regulations and Orders, June 28, 1976. Appendix B 1, examples of wildlife species that commonly utilize snags in California, August 1975.

*U.S. GOVERNMENT PRINTING OFFICE: 1985-578-610:20001